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President's Report

FOR THE YEAR ENDING
30TH JUNE, 1924

1923/24

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PRESIDENT'S REPORT

1923-1924

To the Governors of the University of Toronto:

Gentlemen:—

I beg to submit the following report on the academic work of the University and University College during the twelve months ended June 30th, 1924.

The total staff of the University and University College numbered 583, of whom 70 were professors, 61 associate professors, 56 assistant professors, 90 lecturers, associates (in medicine) and instructors in the College of Education, 1 director, 2 directors of field work, 303 demonstrators, fellows and instructors with sessional appointments. They were distributed as follows:

	Professors	Associate Professors	Assistant Professors	Associates	Lecturers	Director	Director of Field Work	Other Sessional Appointments
University (Faculty of Arts)	25	17	19	..	22	..	..	61
University College	11	11	7	..	5	..	..	8
Faculty of Medicine	20*	15	15	20	8†	..	..	165
Faculty of Applied Science	11	9	10	..	14‡	..	..	40
Faculty of Household Science	..	2	1	..	2	..	..	5
Faculty of Forestry	1	3	..	..	..	..	..	1
Faculty of Music	..	..	..	..	4	..	..	..
Social Service Courses	1	..	..	..	..	..	1	9
Public Health Nursing	..	..	..	..	..	1	1	**16
Ontario College of Education	2	4	4	..	19	..	..	..

*1 also in University
†2 also in Ontario College of Education
‡2 also in University
**1 also in Social Service; 1 also in Medicine

In Victoria College there were:

Professors	13
Associate Professors	3
Lecturers	6
Special Instructors	3

In Trinity College there were:

Professors	10
Lecturers	10

In St. Michael's College there were:

Professors	12
Lecturers	11

The following retired:

Graham Chambers, B.A., M.B., Associate Professor of Clinical Medicine; William Brown Thistle, M.D., Associate Professor of Clinical Medicine; John McGowan, B.A., B.A.Sc., Professor of Applied Mechanics. These gentlemen have given faithful and efficient service to the University for many years and carry with them the esteem of their colleagues.

The following resigned:

Wilbert Amie Clemens, M.A., Ph.D., Cornell, Assistant Professor of Limnobiology; Hugh Bethune Maitland, M.D., Assistant Professor of Pathology and Bacteriology; Arthur Wellesley McConnell, B.A.Sc., Associate Professor of Architecture.

I record with deep regret the death on January 23, 1924, of Dr. C. K. Clarke, Professor of Psychiatry, and for twelve years Dean of the Faculty of Medicine. To no man does this province owe more in respect to the treatment and investigation of psychiatry in hospital and university; by his colleagues and former students his name is held in affectionate remembrance.

The University has suffered a severe loss in the death of Professor T. H. Black, who passed away suddenly in the fullness of his young manhood in June, 1924, and to the deep regret of students and faculty. For four years he had been professor of Roman Law and Jurisprudence. He was a fine scholar, an excellent teacher, and a man of the highest character.

Leave of absence was granted to the following:

For the Michaelmas Term:—Robert Boyd Thomson, B.A., Associate Professor of Phanerogamic Botany, to visit Africa and Australia for botanical investigations.

For the Easter Term:—Andrew Hunter, M.A., B.Sc., Edin., M.B., Ch.B., Edin., Professor of Biochemistry, to continue researches in London; Marcel Moraud, L.ès L. Paris, Associate Professor of French, owing to ill-health; George Henry Duff, Ph.D., Lecturer in Botany, for special research in Europe.

For the year:—John McGowan, B.A., B.A.Sc., Professor of Applied Mechanics; Samuel Beatty, Ph.D., Associate Professor of Mathematics, to lecture in the University of Wales and to study in the University of Paris.

The following new appointments and promotions were made during the year:

In the Faculty of Arts—Appointments:—Theophile James Meek, B.A., B.D., Ph.D., Chicago, Professor of Oriental Languages; Douglas Ewart Hamilton, M.A., D.Paed., Associate Professor of Greek; Eric Trevor Owen, M.A., Associate Professor of Greek, all in University College; Juan Cano, A.B., Toledo, A.M., Columbia, Assistant Professor of Italian and Spanish; Harry Warren Hilborn, B.A., Lecturer in Italian and Spanish; William John McAndrew, M.A., Lecturer in French in University College; Lester Bowles Pearson, B.A., Tor. and Oxon., Lecturer in History.

Promotions:—William Hunter Piersol, B.A., M.B., from an associate-professorship to a professorship in Histology and Embryology (also in the Faculty of Medicine); Edward Alexander Bott, B.A., from an assistant-professorship to an associate-professorship in Psychology; James Tresawna Burt-Gerrans, Phm.B., M.A., from an assistant-professorship to an associate-professorship in Electro-Chemistry; Alexander MacLean, B.A., from an assistant-professorship to an associate-professorship in Geology; Thomas Rutherford Robinson, Ph.D., from an assistant-professorship to an associate-professorship in Philosophy; John Richardson Dymond, M.A., from a lectureship to an assistant-professorship in Systematic Zoology; William Andrew Irwin, M.A., D.B., Chicago, from a lectureship to an assistant-professorship in Oriental Languages in University College; William Paul McClure Kennedy, M.A., Dublin, Oxon., Litt.D., Dublin, from a lectureship to an assistant-professorship in History; John Wood MacArthur, A.B., Oberlin, M.A., Wabash, Ph.D., Chicago, from a lectureship to an assistant-professorship in Genetics; Gordon Cummings Patterson, M.A., from a lectureship to an assistant-professorship in Italian and Spanish, Humphrey Hume Wrong, B.A., Tor., Oxon., B.Litt., Oxon., from a lectureship to an assistant-professorship in History.

In the Faculty of Medicine—Appointments:—Frederick Grant Banting, M.D., Research Professor; Oskar Klotz, M.B., Tor., M.D., C.M., McGill, Professor of Pathology and Bacteriology; Eric Ambrose Linell, M.B., Ch.B., M.D., Manchester, Assistant Professor of Anatomy; Alfred Harshaw Perfect, M.B., Assistant Professor of Surgery; Robert Watson Wesley, M.B., Assistant Professor of Obstetrics and Gynaecology; George Hardey Eagles, M.B., Lecturer in Bacteriology.

Promotions:—Frederick Newton Gisborne Starr, M.B., M.D., C.M., from an associate-professorship to a professorship in Clinical Surgery; James Montrose Duncan Olmsted, M.A., Oxon., Ph.D., Harvard, from an assistant-professorship to an associate-professorship in Physiology; James Crawford Watt, M.A., M.D., from an assistant-professorship to an associate-professorship in Anatomy; Frederick Arnold Clarkson, M.B., from an associateship to an assistant-professorship in Clinical Medicine.

In the Faculty of Applied Science—Appointments:—Eric Ross Arthur, M.A., B.Arch., Liverpool, Lecturer in Architecture; Walter Cameron Cruikshank Duncan, B.A.Sc., Lecturer in Electrical Engineering; Ubert Cecil Holland, B.A.Sc., Lecturer in Mechanical Engineering; George Herbert William Lucas, Ph.D., Lecturer in Chemical Engineering.

Promotion:—Henry Harrison Madill, B.A.Sc., from a lectureship to an assistant-professorship in Architecture.

In the Faculty of Household Science—Appointment:—Miss Lois Katharine Stewart, B.S., Kansas, M.S., Wisconsin, assistant professor of Household Science.

Ontario College of Education—Appointment:—John Hudson Mills, M.A., Queen's, and Charles Edward Phillips, B.A., Instructors.

Promotions:—George Mallory Jones, B.A., from an assistant-professorship to an associate-professorship in English and History; John Oliver Carlisle, M.A., from an instructorship to an assistant-professorship in Classics.

The total number of students registered in the University in 1923-1924 was 4,859, or apart from occasionals in Social Service, 4,627, distributed as follows:

				Men	Women	Total
Faculty of Arts				1,177	1,154	2,331
University of Toronto	178	172	350			
University College	599	550	1,149			
Victoria College	256	283	539			
Trinity College	62	64	126			
St. Michael's College	95	98	193			
Registered twice	13	13	26			
Faculty of Medicine				804	73	877
Faculty of Applied Science and Engineering				564	2	566
Ontario College of Education				150	198	348
Faculty of Forestry				43	. .	43
Faculty of Music				22	34	56
School of Graduate Studies				262	105	367
Department of Social Service				11	259	270
Department of Public Health Nursing				. .	61	61
Registered twice				40	20	60
				2,993	1,865	4,859

The figures may be further analyzed as follows:—

FACULTY OF ARTS

University of Toronto

	Men	Women	Total
Teachers' Courses and Summer Session	132	156	288
Occasional Arts students	46	16	62
	178	172	350

University College

	Men	Women	Total
First year undergraduates	197	148	345
Second year undergraduates	172	133	305
Third year undergraduates	118	126	244
Fourth year undergraduates	85	105	190
Occasional students	28	38	66
Registered twice	1	..	1
	599	550	1,149

Victoria College

	Men	Women	Total
First year undergraduates	86	76	162
Second year undergraduates	66	88	154
Third year undergraduates	52	62	114
Fourth year undergraduates	38	53	91
Occasional students	14	4	18
Registered twice	..	..	..
	256	283	539

Trinity College

	Men	Women	Total
First year undergraduates	14	22	36
Second year undergraduates	24	17	41
Third year undergraduates	11	13	24
Fourth year undergraduates	11	6	17
Occasional students	2	6	8
	62	64	126

St. Michael's College

	Men	Women	Total
First year undergraduates	22	19	41
Second year undergraduates	27	32	59
Third year undergraduates	24	26	50
Fourth year undergraduates	17	20	37
Occasional students	5	1	6
	95	98	193

Faculty of Medicine

	Men	Women	Total
First year undergraduates	86	14	100
Second year undergraduates	93	12	105
Third year undergraduates	129	9	138
Fourth year undergraduates	172	9	181
Fifth year undergraduates (six years' course)	119	11	130
Fifth year undergraduates (five years' course)	195	17	212
Occasional students	1	..	1
Candidates for D.P.H.	3	1	4
B.Sc. (Med.) undergraduates	2	..	2
Post Graduate students	4	..	4
	804	73	877

Faculty of Applied Science and Engineering

	Men	Women	Total
First year undergraduates	122	2	124
Second year undergraduates	127	..	127
Third year undergraduates	150	..	150
Fourth year undergraduates	165	..	165
	564	2	566

Ontario College of Education

	Men	Women	Total
Students in attendance	100	170	270
Extra-Mural students	21	26	47
Students in B.Paed. course	29	2	31
	150	198	348

FACULTY OF FORESTRY

	Men	Women	Total
First year undergraduates	6	..	6
Second year undergraduates	10	..	10
Third year undergraduates	14	..	14
Fourth year undergraduates	13	..	13
	43	..	43

FACULTY OF MUSIC

	Men	Women	Total
First year undergraduates	10	23	33
Second year undergraduates	9	9	18
Third year undergraduates	3	2	5
	22	34	56

SCHOOL OF GRADUATE STUDIES

	Men	Women	Total
Candidates for Ph.D	54	14	68
Candidates for M.A	87	63	150
Candidates for M.D	2	1	3
Candidates for Ch.M	4	..	4
Candidates for M.A.Sc	9	0	9
Candidates for M.Arch	2	..	2
Candidates for C.E	4	..	4
Candidates for M.E	1	..	1
Candidates for D.Paed	80	6	86
Graduate students	19	21	40
Duplicates	2	..	2
	262	105	367

DEPARTMENT OF SOCIAL SERVICE

	Men	Women	Total
First year full-time students	3	28	31
Second year full-time students	..	7	7
Part-time students	8	224	232
	11	259	270

DEPARTMENT OF PUBLIC HEALTH NURSING

	Men	Women	Total
Full-time students	..	27	27
Part-time students	..	34	34
	..	61	61

In addition to the students in regular courses at least 2,650 persons have been receiving instruction provided by the University through its evening classes held in Toronto, Hamilton, and other cities and towns of the Province.

The numbers examined in the different departments of the University, including those persons granted standing for Military Studies, were as follows:

Arts:		
Fourth year	344	
Third year	470	
Second year	630	
First year	657	
Teachers' Course	146	
		2,247
Medicine:		
Fifth year (five years' course)	210	
Fifth year (six years' course)	127	
Fourth year	179	
Third year	137	
Second year	107	
First year	99	
D.P.H	2	
B.Sc. (Med.)	4	
		865

Applied Science and Engineering:		
Fourth year	165	
Third year	149	
Second year	123	
First year	124	
		561

Education	325
Forestry	42
Music	40
Graduate Studies	150
Social Service	232
Public Health Nursing	26
Law	32
Dentistry	481
Pharmacy	94
Agriculture	49
Veterinary Science	26
Local examinations in Music	12,115

The degrees conferred were:		
LL.D. (Honorary)	4	
M.D. (Honorary)	1	
D.Sc. (Honorary)	4	
Ph.D	18	
M.A	76	
M.D	2	
M.A.Sc	7	
M.Arch	2	
C.E	3	
D.Paed	4	
B.A	348	
B.Comm	6	
M.B	209	
B.Sc. (Med.)	4	
B.A.Sc	151	
B.Arch	7	
B.Paed	19	
B.Sc.F	14	
Mus.Bac	1	
LL.B	5	
D.D.S	190	
B.S.A	66	
B.V.Sc	26	
Phm.B	78	
D.P.H	5	
		1,250

The number of the staff is almost the same as last year, with an increase in the sessional appointments of the Faculty of Medicine because of the large final years, and a decrease in the Faculty of Applied Science on account of the somewhat smaller registration of students.

A review of the foregoing figures of attendance will show that there was a small increase in the Faculty of Arts, large decreases in the Faculties of Medicine and Applied Science, owing to the graduation of the last of those groups of students who came in after the War, a slight decrease in Forestry, a slight increase in the Faculty of Music, a large increase in the College of Education and in the School of Graduate Studies, a decrease in the Department of Social Service, and a slight increase in the Department of Public Health Nursing.

The most noteworthy increase is found in the School of Graduate Studies. Of the 367 students registered, 87 had received their training in other universities representing every section of the Dominion of Canada, 36 held fellowships and work was undertaken in 31 different departments of study.

In the College of Education there was also an increase in the number of students, which is probably to be explained by the fact that in times of comparative depression many who would otherwise go into business turn towards teaching. Also, the scale of salaries has of late induced more favourable attention to teaching than formerly. These causes also account for the larger proportion of men who have been entering the Ontario College of Education in the last few years. The students of this Faculty are drawn from all over Canada, from Britain, and from the United States.

Of the 563 who entered the first year in Arts, 84, or nearly 15 per cent., failed in the work of the session; 222 were in the pass course, of whom 46, or nearly 21 per cent., failed; 341 took honours, and 38, or about 11 per cent., failed in their honour work. This indicates that on the whole reasonably good work is being done, especially by those who have taken honour courses; but the result is also partially explained by the fact that weaker students had been eliminated by the matriculation standards.

From estimates extending over a number of years it would appear that the percentage of those entering the first year in Arts who finally graduate is from forty-five to fifty. The loss in the later years is not altogether due to inability or indifference in regard to their academic work. Many students from one reason or another find it necessary to leave the University in order to begin to earn their living; others at entrance did not intend to continue their courses for more than one or two years; but it will always be to their advantage to have had the education, incomplete though it may have been, which they received in the University.

Of the 100 who were registered in the first year in Medicine 8 per cent., failed, and of the 124 in Applied Science 16, or about 13 per cent., failed. The percentage of those who completed their courses in Medicine and Applied Science estimated over a number of years is somewhat higher than in Arts, and approximately the same in the two Faculties. It is, of course, impossible to estimate by figures the standards set by any Faculty, but they indicate the way in which the standards are lived up to.

The reasonable policy and fair procedure in a University is to guard the entrance to the expensive and difficult professional courses in such a way as to prevent as far as possible later disappointment. There is good reason for believing that now in all our Faculties a fair approximation exists between entrance standards and subsequent requirements, and that there is no ground for complaint of undue severity or laxity of standards.

The Faculty of Arts is the oldest and by far the largest in the University. Its relative position among the other faculties gives it a strong unifying power, so that the professional schools are not, as in some places, mere aggregations of unrelated groups, but are members of a great body, the spirit of which is determined by the primary purposes of teaching and research, the imparting and extension of knowledge, on the basis of humanistic and scientific studies. A professional school unrelated to a university is in peril of becoming not only narrow but simply technical; when it is a part of an institution the atmosphere of which is determined by a company of teachers and investigators in a very wide range of studies, such as a great university fosters, it is liberalised; and those who have been trained in it have had the opportunity of intercourse with undergraduates and graduates in a great variety of courses.

The propinquity of the medical departments to those of the Faculty of Arts has made possible the experiment in medical education which has been tried during the past six years. In the first three years of the medical course options from the Arts departments are included in order that the student may get some tincture of a different quality of liberal education in addition to that which he will receive in his regular professional course; for a modern medical course conducted by men of genuine scientific spirit does liberalise the mind. The greatest problem in our higher education seems to me to be how we shall prepare the professional man to fill a fuller and larger place in society, how we are to broaden his human interests. The experience of the past leads us to believe that this can be done by giving him more than the mere rudiments of a liberal education before he enters upon the special professional studies. A strong faculty of Arts offers this opportunity on a generous scale, and in looking to the future one has both the hope and the confidence that in this University the professional faculties will strengthen their affinities with Arts that have been slowly growing for many years.

I have much satisfaction in calling attention to the report of the Librarian, which shows a remarkable increase in the use of the books during the last two years. In this time twice the number of students have become regular readers in the Library. This is due partly to the action of professors in recommending more reading to their students, and partly to the large increase in the number of graduate students. It is noteworthy, also, that over six hundred graduates of the University have been granted the privileges of the Library and take out books from time to time. The use of the Library is one of the best indications of the character of the work that is being done in the University, and I judge by this that the quality is good. Though the number of the books is not as large as in many other university libraries of the rank of the University of Toronto the selection in most departments has been admirably made, and there is in it the largest collection in Canada of periodicals in scientific departments and in the foreign languages. By co-operation with the Toronto Public Library and the Royal Canadian Institute a joint catalogue has been issued, which places all the material of the city at the disposal of the student. Unfortunately the rapid rise in the cost of books, and especially in the cost of binding, has seriously interfered with the growth of the Library. There is proportionately a smaller amount of money available for the purchase of books than the requirements of the University demand.

The work of the Department of Health for men and women as outlined in the reports of the directors shows that the undergraduates are in a very sound condition physically, 99.2 per cent. being fit to take physical exercise. The value of compulsory training is appreciated, corrective work to the extent of 6 per cent. indicates improvement in those previously examined, and in not a few instances detection of incipient disease or weaknesses has prevented greater trouble. In general the athletic side of university life is both prosperous and healthy. The ideals of good sportsmanship are being maintained, and through the inter-faculty and inter-collegiate contests a large number enjoy open air games. Unfortunately the space for women's athletic activities, both in buildings and in the open air, is quite inadequate. It is to be hoped that soon some further provision can be made.

The Extension work is developing very rapidly and in addition to the numbers already referred to as members of evening classes several thousands have attended the occasional lectures given in many localities.

At the British Empire Exhibition held at Wembley the University has been brought to the attention of the English public through a series of photographs and by other information arranged by Mr. W. J. Dunlop. The exhibit of Canadian Universities will have served to show those who have some intention of making their home in Canada the opportunities for higher education offered in this country.

By the removal of the Administrative Offices into Simcoe Hall University College has been given for its almost exclusive use the historic building which has been its home for sixty-five years. The changes which have been thereby made possible should result in a stronger realisation of its own individuality, and in a larger opportunity for the creation of the type of education within the University which has always given the College its distinction.

As a part of the same policy the Departments of History and Political Economy have been removed from what was called the Main Building and have been placed in a house by themselves to which the name Baldwin, in memory of the Honourable Robert Baldwin, has been attached. This transfer not only gives these departments better accommodation, but associated as they are, it brings them into close proximity, and signifies as well that they are non-collegiate and are related alike to all the Colleges of the University.

Psychology has also been transferred from the Main Building into the houses formerly occupied by the Department of Political Economy, and though the laboratory space in these houses is not all that could be desired, yet this department will have more space, and its removal has left several smaller rooms which will be put into immediate use by the staff of University College hitherto very much overcrowded.

A useful addition was made to the Faculty of Applied Science. The Department of National Defence, recognizing the importance of maintaining the Aerodynamics Laboratory, the only one of its kind in Canada, and of continuing its work, granted to the University through the Honorary Advisory Council for Industrial and Scientific Research five thousand dollars toward the erection of a suitable building for housing the wind channel, in return for the continuance of such facilities as had heretofore been available to the Department. The offer was accepted by the University and the building completed, the additional cost over and above that of the grant being borne by the University.

The excellent character of the University Schools is being maintained, and the appreciation of the public is shown in the applications for entrance which are far greater than can be met. The addition to the building containing swimming-pool and gymnasium means much for the efficiency of both Schools and Faculty, but it has made further inroads into the space that was set aside for playgrounds. Steps should be taken as soon as possible to afford better provision for out-of-door exercise and sport in these otherwise splendidly equipped Schools.

There has been a remarkable growth in the Connaught Laboratories in the ten years that have elapsed since their establishment, and the aims with which they were opened have been amply realized up to the present. The laboratories began with five full-time and two part-time appointments; to-day fifty-two persons are giving their full-time and four part of their time to this work. Researches have been undertaken into the etiology, the prevention and treatment of scarlet fever and into the serology of tuberculosis.

The manufacture of Insulin has also been taken over by these laboratories, and great advance has been made in purifying and increasing the yield so that the cost to the average patient is less than twenty cents a day, or one-fifth of what it was eighteen months ago.

The Insulin Committee has been extending the use of Insulin throughout the world, and has been successful in controlling the quality and price of the output by securing trade-marks and patents in many countries, and in others by transferring them to trustworthy representatives who will carry out the aims of the University. It has been a difficult piece of work, partly because there were no precedents for the policy adopted by the University, but happily the results have been good, and the Governors may have the satisfaction of knowing that the great discovery made in its laboratories has been of incalculable benefit at very low cost to sufferers in every part of the world.

The preparations for the visit of the British Association and of the International Mathematical Congress which met here early in August, 1924, occupied a great deal of the attention and energy of a large number of our staff, and they were all but completed before the end of the academic year. Though the meetings themselves were held shortly after its close reference may be made to them in this report while the interest is still keen, rather than to defer it for a year. These two gatherings brought to Toronto the largest number of scientists of international reputation who have ever visited Canada. The meeting of the

British Association was particularly well attended, and, owing especially to the indefatigable efforts of Professor Fields, a very representative body of European mathematicians came to the Congress. Universal expression of satisfaction was given by the visitors at what they found here in the way of university equipment, as well as in the standards of work and accomplishment of our scientific departments. Many contributions were made by members of the staff to the programmes of the sections, and the stimulus that they have received from the discussions and by coming into personal relations with representatives of Science from Britain and Europe will mean much for the University. Such gatherings could not have been held had there not been in this institution a large number of men, and among them not a few of the junior members on the staff, of high quality who by their outlook, their ruling interest and their intelligence prepared for, participated in, and helped to carry these meetings to a successful conclusion.

The list of wide and varied publications appended to this report is a gratifying evidence of the extensive interest in research that prevails in the University.

During the year several distinctions have come to members of the staff. Among others the Nobel Prize to Professors Banting and Macleod, the Hunterian lectureship in the Royal College of Surgeons in London to Dr. W. E. Gallie, and a position on the International Health Board of the Rockefeller Foundation to Professor J. G. Fitzgerald.

A Special Convocation was held on November 26 for the conferring of the honorary degree of Doctor of Science upon Professors Banting and Macleod on the occasion of the award to them of the Nobel Prize, and thereafter the Governors gave a banquet in Hart House in their honour, to which representatives of the Medical Profession from various sections of the Province were invited.

The following special lectures were delivered: A series of fourteen lectures on "Applications of Modern Physics to Astronomy" by Professor H. N. Russell of Princeton University; a series of ten lectures, five in English, on "Studies in Shakesperean Technique", and five in French, on "Étude psychologique du peuple français" by Professor Albert Feuillerat of the University of Rennes, France; a series of twelve lectures on "The Races of the World" by Sir Bertram Windle, Lecturer in Ethnology in the University of Toronto; three lectures on "The Theory of Atomic Structure, including the Correspondence Principle" by Professor Niels Bohr of Copenhagen; one lecture on "Conditions in the Near East" by Count Albert Apponyi of Hungary; and one lecture on "The Influence on the development of sex of the ductless glands other than those of reproduction" by Professor A. Biedl of Prague.

Dr. F. A. Mouré, the University organist, gave during the year a successful series of organ recitals fortnightly, beginning early in October and finishing early in March.

During the past year the University has been the recipient, or has had the announcement, of some extremely generous benefactions. The two largest of these were a bequest in the will of the late E. C. Whitney, Esq., a Governor and former benefactor of the University, which will bring over $400,000, and the offer of $650,000 from the International Health Board of the Rockefeller Foundation for the erection of a building for a School of Hygiene and for the development of the Department. In addition the following were received: Payment in full of grant by the Rockefeller Foundation to University for Faculty of Medicine (including premium and interest), $1,148,901.20; Eaton Endowment (annual payment), $25,000; Nipissing Mining Company Limited for Research Fellowship (including interest), $20,550; Graduate Fellowships: Sir Edmund Osler, $1,000; Colonel R. W. Leonard, $500; Imperial Oil Company, $500; Sir Edward Kemp, $500; Canadian Pacific Railway, $1,500; Carnegie Corporation for Research in Physics, $2,553.12; Dr. R. A. Reeve Bequest and Prize in Medicine, $2,230; Ontario Hockey Association, "War Memorial

Scholarship", $2,000; Hollinger Consolidated Gold Mines Limited, for Research Fellowship, $1,200; Allan Rudyard Crawford Scholarship, University Schools, $500; Robert Bruce Bequest, for Scholarships and Bursary, $236.77; Boiler Inspection and Insurance Company, Scholarship in Mechanical Engineering, $150; Women's Mining Association, Prize in Geology, $150; McCaul Scholarship in Classics: G. A. H. Fraser, Esq., $25.59; Principal M. Hutton, $25; A. M. Stewart, Esq., $25; University College Alumnae for Prize in English, $10.

The contents of the Royal Ontario Museum have been enriched through additions to the George Crofts Chinese collection, and by the results of University expeditions to the Red Deer River, as well as by many other gifts and purchases which are reported by the Directors of the several museums.

On June 5 the Soldiers' Tower was dedicated with a very impressive ceremony. Few, if any, nobler memorials have been erected anywhere, and it will signalise for centuries the devotion of graduates and undergraduates to their country and the cause of humanity. Further loans were made last year to soldier students, which brought up the total to $164,136.79, granted in five years to 539 persons. Hereafter the loans will practically cease, and a system of scholarships will, in accordance with the original purpose, be established. The members of the Alumni Federation deserve the thanks and congratulations of the University on having dispensed so worthily the $350,000 which they raised to commemorate the services of their fellows.

In closing this report I cannot but refer to the fact that during the year we have had to mourn the death of two Chancellors of the University, Sir William Meredith and Sir Edmund Walker. These gentlemen, each in his own way, rendered invaluable services to the University. It was fortunate that during the period of great expansion and of the testing of the new constitution, the University was served by these two gentlemen with such eminently wise counsel and tried devotion.

All of which is respectfully submitted.

ROBT. A. FALCONER,
President.

November 3rd, 1924.

APPENDIX A

(1) Report of the Principal of University College.
(2) Report of the Dean of the Faculty of Medicine.
(3) Report of the Dean of the Faculty of Applied Science.
(4) Report of the Dean of the Faculty of Forestry.
(5) Report of the Dean of the Ontario College of Education.
(6) Report of the Dean of the Faculty of Music.
(7) Report of the Dean of the School of Graduate Studies.
(8) Report on Research.
(9) Publications.
(10) Report of the Librarian.
(11) Report of the Director of the Department of Social Service.
(12) Report of the Director of Public Health Nursing.
(13) Report of the Director of University Extension and Publicity.
(14) Report of the Director of the Department of Military Science.
(15) Report of Health Services.
(16) Report of the Warden of Hart House.
(17) Report of the Director of the Connaught Antitoxin Laboratories.
(18) Statement regarding the Biological Museum.
(19) Statement regarding the Museum of Geology.
(20) Statement regarding the Museum of Palaeontology.
(21) Statement regarding the Museum of Mineralogy.
(22) Statement regarding the Museum of Archaeology.

(1) REPORT OF THE PRINCIPAL OF UNIVERSITY COLLEGE

(*Principal Maurice Hutton*)

The Session of 1923-24—so far as University College is concerned—has been satisfactory and uneventful.

The Literary and Athletic Society lost both its President and its Vice-President before the Session began: nevertheless no one could have been better qualified for President than Mr. McCulley of Wycliffe, who succeeded to the post. He is now going to Christ Church, Oxford, and should be able to add to the repute which this College already holds in Oxford, through Mr. J. E. A. Johnstone and Mr. M. C. Tait, both of Balliol.

The Session has seen in its close the removal of the President, the Registrar, the Superintendent and the Bursar to Simcoe Hall. The space so vacated will furnish welcome and much-needed relief to the members of the College Staff, who have been hitherto "hived" two and three in a room, and who have been meeting students and discussing their papers under every disadvantage. Half a dozen new lecture rooms—or rooms restored to lecturing purposes—will also be available; and last, but not least, the students of the College will have for the first time a junior common room in the old College dining-hall. The experiment will show how much such a room was wanted by a College which, from its very numbers, has lacked individuality and corporate unity. If the students rise to their responsibility, make adequate use of the room, and maintain order there, the banishment of lectures from the hall will not be a matter for regret, though for a time entailing difficulties, as we shall still be short of large lecture rooms, when the dining-hall is no longer available.

The Literary and Athletic Society, which is the students' organization of University College, will have the advantage of the co-operation and advice of a resident member of the College Faculty in all matters relating to their common-room.

The members of the fourth year for the first time nominated a woman—Miss Spence—for the Moss Scholarship; Victoria College also nominated a woman. The scholarship was actually awarded to a student of St. Michael's. Both the nominations and the award are worth notice and are landmarks of a kind. The emergence of St. Michael's College during the last six or eight years is one of the most conspicuous features in the growth of the University: which is now, in fact, as well as in name a four-College system. St. Michael's—as is natural—is of special assistance to the Department of Classics; nor does it limit that assistance, as has sometimes happened elsewhere and in the past, to the Latin language: its students are not less prominent in Greek, especially the teaching Sisters.

Last year at this time, in my report to the Alumni, I noted the resignation of Professor Adam Carruthers. His successor, Professor Owen, has realized the hopes with which he was appointed. But his appointment as assistant to Professor Woodhead was hardly made before the College suffered another loss in the resignation of Professor Woodhead himself. McGill College was well advised in giving to our second Professor in Greek the succession to Dr. Gordon Laing in the classical headship of their university. Mr. Woodhead earned golden opinions in Oxford, in Edmonton, in Chicago, and with us. He will not be less appreciated in Montreal. We did the best we could under the circumstances by asking Mr. D. E. Hamilton of the University School to take the vacant place on our staff in Greek. Mr. Hamilton has earned the same reputation as Professor Owen as a stimulating and gifted teacher, besides being a good scholar.

(2) REPORT OF THE DEAN OF THE FACULTY OF MEDICINE

(*Professor A. Primrose*)

It is noteworthy that in the Session 1923-24, which has just closed, the last group of students who began their course in Medicine under the terms of a curriculum of study of five years, graduated. The five year course is now a thing of the past; in future all undergraduates in Medicine, in the University of Toronto, will be pursuing a course of study extending over six years. The transition period between the two courses has been passed with the minimum amount of embarrassment either for the teaching staff or the students. It will, nevertheless, be an obvious advantage to have the entire body of students working under the same curriculum, particularly so in the final clinical years.

We are still labouring under some disadvantage in the large size of the classes which entered medicine in the two or three years which immediately succeeded the war. Thus the fourth year of the six-year course for last session numbered 181. This class will not be eligible to graduate until two years have elapsed. Subsequent to that period, however, we shall reap the full benefit of the regulation limiting the number of students in the entering class, which has now been in force for the past three sessions. Once more we may call attention to the wisdom of restricting the number of students in medicine. There has been difficulty in providing efficient clinical instruction in the hospital for large classes, and it will be a very great advantage when these classes are reduced to smaller numbers.

The University of Toronto and, in particular, the Faculty of Medicine, suffered a severe loss in the death on January 20th of Dr. Charles Kirk Clarke, Professor of Psychiatry and formerly Dean of the Faculty of Medicine. His varied activities and splendid achievement in many spheres of usefulness are well known and recognized. His high attainments in Psychiatry secured for him a reputation which was international in character. In recognition of the position he occupied as an authority on Mental Disease, he was invited to England last year to deliver the "Maudsley lectures" in London, an honour hitherto never extended to a psychiatrist on this side of the Atlantic. While in London Dr. Clarke enjoyed a most enthusiastic reception; the press gave much space to the publication of his views, more particularly in connection with Emigration of the Mental Defective, and his co-workers in Britain in their public utterances paid tribute to his high standing as an authority in his subject.

He was Dean of the Faculty of Medicine from 1908 until 1920. He was Superintendent of the Toronto General Hospital from 1911 until 1918. In this dual position he came into intimate contact with the students and the staff and rendered a service, in connection with the training of undergraduates in Medicine, the value of which is hard to overestimate. At the time of his death he was Medical Director and Commissioner of the Canadian National Committee for Mental Hygiene, a service for which he was eminently fitted after a long and distinguished career in connection with the asylums and hospitals of our community. The splendid Reception Hospital, which is nearing its completion, on Surrey Place, Toronto, will remain a lasting memorial to Dr. Clarke. Its erection is mainly due to his individual effort to make provision for the care of those suffering from Mental Disease. This new Hospital will provide clinical teaching facilities for the University students of the highest value for the purpose of training men to treat, with efficiency, these unfortunate sufferers.

Throughout the Great War his services were of the greatest value, more particularly in the organisation, equipment and maintenance of the University Unit, No. 4 Canadian General Hospital, which served in Salonika and in England.

Dr. Clarke was a man of wide culture: he was a great lover of music and could himself play the violin with sympathetic and finished touch. He loved the study of nature and, in the Lake District, where he enjoyed his summer holiday, he made many observations of the habits of animals, more particularly the birds, regarding which he was an acknowledged authority. His delightful wit and humour were a source of constant enjoyment to those with whom he came in contact. In the death of Dr. Clarke the students of our Faculty have lost a friend who was always alert to guard their highest interests, and the members of the Faculty mourn the loss of a gifted colleague for whom they had the deepest affection and regard.

There have been very few changes in the personnel of the active teaching staff and only minor changes in the requirements of the curriculum of study. Professor Klotz has completed his first session as head of the Department of Pathology and has given ample demonstration of his ability as a teacher and administrator, commensurate with the brilliant record he attained prior to his appointment to the Chair of Pathology and Bacteriology in this University.

Three years ago the Rockefeller Foundation donated the sum of one million dollars to the Faculty of Medicine. Since that time the interest on this amount has been sent to the University by the Foundation. Last December the capital sum was paid and will in future be administered by the University.

Once more we are indebted to the Rockefeller Foundation for a munificent bequest. On May 20th, the International Health Board of the Rockefeller Foundation approved of a proposal to assist financially in the creation and endowment of a School of Hygiene in the University of Toronto; and, the following day, the Rockefeller Foundation pledged $650,000 to the Governors of the University of Toronto for that purpose. The Governors of the University have accepted the proposals and the above mentioned sum will be utilised to provide a building to cost not more than $400,000, the remaining $250,000 will be used for the endowment of the School. While final details of organisation remain to be perfected, the School will include the Departments of Hygiene and Preventive Medicine and Public Health Nursing and the Connaught Laboratories. The operating or public-service divisions (namely, the antitoxin and insulin units) of the Connaught Laboratories will be merged to constitute a public-service section of the School.

The endowment will be added to by the inclusion of the resources of these Laboratories, namely, the Connaught Laboratories Research Fund. The Governors of the University have agreed to maintain the building and to continue to sustain the budgets appropriated for 1924-25 for the maintenance of the teaching Department of Hygiene and Preventive Medicine and Public Health Nursing.

Certain members of our staff have attained high honour in recognition of valuable contributions to scientific medicine. The Nobel Prize, the most distinguished international honour available in science, was conferred upon Professor F. G. Banting and Professor J. J. R. Macleod in recognition of the discovery and development of Insulin as a cure for Diabetes Mellitus. The event was celebrated by a dinner tendered to them by the Governors of the University of Toronto at Hart House on November 6th, 1923. Numerous honours have been conferred upon these distinguished members of our staff by various bodies in different parts of the world. At a special convocation on November 27th, 1923, they were the recipients of the D.Sc. (*honoris causa*) from the University of Toronto. Professor Banting shared his Nobel Prize with Mr. C. H. Best in recognition of the contributory work of the latter in connection with Insulin and, for similar reasons, Professor J. J. R. Macleod divided his prize with Dr. J. B. Collip. Professor J. C. McLennan was the recipient of the honorary degree of Doctor of Science of the University of Liverpool. Dr. W. E. Gallie, as Hunterian Professor, delivered in April, 1924, a series of lectures in the Royal College of Surgeons of England. Dr. Gallie's lectures consisted of a series of demonstrations illustrating his valuable contributions to Surgery in the use of living sutures, as the result of his experimental and clinical work. Professor Fitzgerald was honoured by being appointed a member of the International Health Board of the Rockefeller Foundation.

The Clinical Departments maintain a high standard of efficiency. The organization of these Departments, on their present basis, was made possible a few years ago by the endowment of the Department of Medicine by the late Sir John and Lady Eaton and by the Rockefeller Gift. There have been no essential changes in the organization during the past session other than certain modifications and staff appointments, which have been made in order to increase efficiency. Thus in the Department of Surgery Dr. Kenneth G. MacKenzie was appointed to the staff for the purpose of developing the special surgery of the Nervous System. Dr. MacKenzie was a Silver Medallist in his graduating year; he had an excellent record in the Army during the war; subsequently he spent a year in the Anatomical Department studying the Anatomy and Physiology of the Nervous System. A year spent as assistant to Professor Harvey Cushing of Harvard University and a short period at the Mayo Clinic gave him an excellent training in Neurological Surgery. While we may deplore the multiplication of specialities, yet it is an obvious fact that remarkable advances in recent times in surgery of the Nervous System demand very special training in order that the surgeon may be able to carry out with skill and judgment the difficult technique required in the care and operative treatment of patients suffering from lesions of the brain, spinal cord, etc. During the past session Dr. MacKenzie has done excellent work in the Toronto General Hospital. We believe this move on the part of the Department of Surgery will be welcomed over a wide area by surgeons in Canada.

Department of Medicine:—No essential changes have been made in the organisation of the Department of Medicine in the University or in the Medical Service of the Toronto General Hospital. We regret to report that Dr. W. P. Warner, who was appointed Fellow in Medicine and Resident Physician in the Toronto General Hospital, was forced to resign in April because of illness. He had done excellent work throughout the session. Dr. John Hepburn, a graduate of the University, who served on the house staff of the Hospital and one year in Physiology under Professor Macleod, was appointed junior demonstrator in Medicine on a full-time basis. Dr. F. G. Banting, having been appointed Professor in Medical Research, resigned his position as junior demonstrator in Medicine.

Further experience in the clinical use of Insulin in the treatment of Diabetes Mellitus has confirmed the observations made in the report of last year.

Some idea of the activities of the staff in Medicine, in the realm of research and clinical observation, may be shown by noting the following publications of the past session:—

"Dietetic Treatment of Diabetes Mellitus": W. R. Campbell.
"Pleural Infections": Duncan Graham.
"An attempt to isolate a filter-passing virus in Epidemic Influenza": H. K. Detweiler and W. R. Hodge.
"Kahn precipitation test for Syphilis": H. K. Detweiler.
"A method for the determination of Magnesium in Body Fluids and the Magnesium content of serum under normal and pathological conditions": Miss Grace McPherson.
"Diabetes Innocens": W. R. Campbell.
"A further report on a series of recovered cases of Subacute Bacterial Endocarditis": J. Oille, Duncan Graham and H. K. Detweiler.
"The use and abuse of Iodine in the treatment of Goitre": Duncan Graham.
Other Clinical investigations are in progress.

During the spring and summer last year a course, extending over two days, on the use of Insulin was given by the staff to groups of forty physicians. Over eight hundred physicians from the Province of Ontario and a number from outside the Province attended. In December a similar course was given to some sixty physicians.

In the Sub-Department of Paediatrics, under Dr. Alan Brown, Associate Professor, work of special value has been carried on in the Nutritional Research Laboratory; this may be summarized as follows:—

"A combined chemical and bacteriological investigation into the cause of chronic intestinal indigestion and the basis of its treatment": Miss A. M. Courtney and Miss I. F. MacLachlan in collaboration with Dr. G. A. Davis, with the assistance also of Dr. Tisdall and Dr. Boyd.

In addition to the above Miss Courtney and Miss MacLachlan have investigated the following: Salt analyses in breast milk; fat metabolism in gastro-enterestomy, atresia of the bile duct and in a case of fat indigestion of unknown nature. Dr. G. L. Boyd has conducted investigations in the metabolism of Diabetes, and in the distribution of Protein in the blood, urine and in ascitic fluid of cases of nephritis. Dr. F. F. Tisdall has studied the H-ion concentration in the stools of infants, the effect of ultra-violet rays on blood-sugar concentration in Marasmus, and preliminary work on the determination of carbohydrate tolerance in infants.

Department of Surgery:—We have already referred to the appointment of Dr. K. G. MacKenzie in connection with the special surgery of the Nervous System. Otherwise no special change has been made in organisation save such minor alterations as appeared necessary to renew energy and increase efficiency. The students, throughout the session, worked with enthusiasm and satisfactory accomplishment.

The system of having the Head of the Department devote the major part of his time to University and Hospital work, with the second line of teachers part-time men, works effectively. The success of this organisation is chiefly due to the loyalty of the part-time staff and their willingness to sacrifice their time for the general advancement of the surgical work and the development of students in the University. The subject of Surgical Anatomy has been further advanced. The aim of the Department is ultimately to carry training in Anatomy throughout all the clinical years. The clinicians have been faithful in the performance of their duties, and the co-relation of work has improved the status of the students very materially.

The bi-monthly meetings of the staff have continued to be enthusiastic and helpful: the attendance has always been at least 95 per cent. of the staff. In addition to other features previously outlined as the programme of these meetings, a survey of the End results obtained in the surgical treatment of a variety of conditions in the Toronto General Hospital for the past ten years has been made. Information of great practical value has thus been collated and studied.

Research and clinical observation have been continued by different members of the staff. The investigation of various problems has been pursued with profit.

Department of Obstetrics and Gynaecology;—The plan of organisation, which has been in vogue for several years, has been continued without any essential changes. The facilities for teaching in the clinics have been adequate and the staff has done effective work preserving the high standard of efficiency hitherto maintained. The Metabolic Ward which has been established in the Burnside Lying-in-Hospital is under the control of a special nurse. Here such problems as the toxaemias of pregnancy are studied by members of the staff in collaboration with the Department of Pathological Chemistry.

The special Departments of Ophthalmology and Oto-Laryngology have continued with the same organisation of the staff for teaching as has obtained heretofore. The work of the session has been carried on in a manner entirely satisfactory. In connection with Diseases of the Ear, Dr. Howard Burnham has been making and studying sections of the labyrinth by a new method which has proved highly successful. Experimental work has been inaugurated in connection with the Department of Anatomy concerning inflammatory conditions of the middle ear.

Work in the Department of Therapeutics has been satisfactory throughout the session. Certain research problems have been undertaken by members of the staff, Dr. F. M. R. Bulmer investigating the effect of small doses of atropin on the action of the heart and Dr. W. Easson Brown determining the properties of anaesthetic gases, such as Propylene, Methane and Dimethyl Ether.

A successor has not yet been appointed to fill the Chair of Psychiatry rendered vacant by the death of Dr. C. K. Clarke. The establishment of the Reception Hospital in Surrey Place will greatly enhance the opportunities for the clinical study of Psychiatry. This Hospital is now nearing completion and will be ready to receive patients in the near future.

The Banting and Best Chair of Medical Research was established by the Board of Governors of the University as the result of a special grant of the Legislature of the Province of Ontario in 1923.

The terms of the Act establishing the Banting and Best Research Fund provide for an annual grant to the University of Toronto for the promotion of Medical Research in accordance with the following preamble which appears in the Act:

"Whereas F. G. Banting, M.D., and C. H. Best, B.A., in the prosecution of medical research have made an important discovery by means of which it is now possible to ameliorate the condition of persons suffering from the disease known as diabetes, and it is believed that prosecuting the research will result in perfecting a remedy for the cure of that disease, and it is desirable and expedient in the public interest to provide by legislative grant the continuation and prosecution of kindred researches".

Research under the provisions of this Chair began in July, 1923, and researches on several medical problems are being carried on in laboratories in the Medical Building of the University. Work is also being carried out in the Insulin Division of the Connaught Laboratories with funds provided from this grant.

Department of Anatomy:—The splendid accommodation provided in the new building of the Department of Anatomy has been utilized to the full during the past session; the facilities available in this Department for graduate and undergraduate study are unsurpassed, and Professor McMurrich is to be congratulated on the successful accomplishment of his effort to provide adequate laboratory accommodation and complete equipment. Arrangements have been made for the installation of X-ray apparatus to be used in connection with the work in the dissecting room. The classes in Histology and Embryology have been transferred from the Department of Biology to that of Anatomy: this has been made possible by the erection of the new building and has resulted in a better correlation of the work in these subjects with the instruction in gross anatomy. A departmental library has been established, including periodicals and monographs dealing more especially with Anatomy.

The course on the Anatomy of the Nervous System was given by Dr. Eric Linell, who came to us recently from the University of Manchester. Optional courses were offered by the members of the staff on the anatomy of the joints and ligaments, on microscopic technique, on the anatomy of the sense organs and on sectional anatomy.

Researches have been conducted by several members of the staff, and some results may be noted in the list of publications of the Department published elsewhere in this report. In addition Dr. Watt has continued his studies on bone development. Dr. Linell studied a case of anomalous development of the cerebral cortex and has also collaborated with Dr. H. Burnham on problems connected with the middle ear with Dr. K. G. MacKenzie. Dr. H. G. Willson has continued his studies on the structure of the lung in certain of the lower mammalia; Mr. W. C. M. Scott on the development of the primary islands in certain fishes, and Dr. Tom has begun the study of the arrangement of the peritoneum in an early human embryo.

Department of Physiology:—The smaller size of the classes in the primary years has proved of definite advantage in permitting the staff to devote greater attention to the individual instruction of students. Of the regular teaching staff there have been 7 full-time instructors, but besides this great assistance has been afforded by the employment of 7 part-time instructors, these being persons primarily engaged in research in the department or previous full-time assistants who are now filling clinical positions. It has thus been possible to develop a system of small tutorial groups in which the practical and didactic work of the regular classes is reviewed. Having as instructors in several of these groups persons who are in touch with clinical material, the application of physiology in medical science receives considerable attention.

Two classes in options were conducted for medical students, one in the History of Physiology taken by 50 students and another in advanced Experimental Physiology by 13 students. The Professor of Physiology is not entirely satisfied with the intensive teaching of Physiology in one year of the medical curriculum and suggests that some rearrangement of the course of study in this regard may be advisable.

There have been, on an average, eleven persons engaged, for at least half their time, in scientific research and four others who have given several hours a week to such work. Two Fellows of the Rockefeller Foundation have also worked in the laboratory—Capt. Sokhey of the Indian Medical Service and Dr. Macela of Prague. The work of these gentlemen has proved of great value, not only from the point of view of actual results obtained, but also because of the broadening influence which their presence has on the workers in the laboratory. The Department is grateful to the Carnegie Corporation as well as to the Research Fund of the University for financial assistance which has made this extended research possible.

With regard to the results of research it may be said that considerable progress has been made in working out the details of the action of Insulin on the animal body and on other problems of carbohydrate metabolism. These results have been published in various scientific journals.

The Department of Biochemistry is handicapped by being understaffed and the appointment of an assistant professor is an urgent necessity. It is hoped that conditions may be partly met by the appointment of an additional demonstrator for the session 1924-25. For the first time students in the Third Year Biology course took laboratory work and lectures in the department—owing to lack of staff they took their laboratory course with the medical students. With additional full-time instructors it might be possible, as it is desirable, to give a special course of more general nature which would be better suited for this type of student and which would be completed in one year; similarly students in the Third Year of the Physiology and Biochemistry course might be better served by a course dealing with the more general aspects of Biochemistry.

The option course given to the Fourth Year medical students this year dealt with a subject of practical interest, namely, nutrition. The students were given a choice between a course of this type and a course which, while of fundamental importance to scientific medicine, was less practical in its application. Only one student chose the latter course. It is interesting in this connection, however, to note that the less practical course was voluntarily taken by four of the Fourth Year students in Biology and Medicine.

All of the teaching staff in Biochemistry have been engaged in research work during the year. The Department continues to derive benefit from the co-operation of the Department of Zymology.

Department of Pharmacology:—The teaching work of the Department has been carried on in a very satisfactory manner as the staff was relatively strong in personnel. The Research work in the Department may be indicated as follows:

"Diuretic and antidiuretic Effect of Pituitary Extract and suggestions for a subsidiary test": Dr. Mackensie.

"Yeast growth promoting Vitamin tested for its effects on animals", and "Vitamin A and its variation in cod liver oil" by Miss Jean Deas.

"The sensitivity of small intestine, at different levels, to internal pressure" by Professor Crane of the University of Western Ontario.

In addition to the above Dr. W. Easson Brown, Research Fellow in Therapeutics, has carried on important studies in anaesthetic gases. Dr. Ward, government chemist-pharmacologist, has been studying methods of biological standardisation. Dr. Sharpe, with Dr. Shields, has studied the degeneration of the liver caused by anaesthetic gases, and Mr. Bonham is investigating the reactions involved in the preparation of propylene gas.

Dr. Banting, Dr. Cornell and Miss Gairns, of the Department of Medical Research, have been working in the Department of Pharmacology during the year.

Department of Pathology and Bacteriology:—During the past year, although under the guidance of a new director, the work was carried on in much the same manner as in previous years. The curriculum of study had been arranged for the year prior to the coming of Professor Klotz and therefore no radical changes were introduced. The personnel of the staff remained the same throughout the session. The activities of the Department were studied throughout the year with the view of further organisation and arrangement respecting, in particular, undergraduate teaching.

The excessive number of students in the final years rendered it impossible to provide satisfactory courses; the physical equipment of the Department was quite inadequate for the purpose. Four courses in options (two in Pathology and two in Bacteriology) made an additional burden difficult to handle under existing circumstances. In addition space was provided for the Surgical Department to conduct a course in Surgical Pathology and for the Medical Department to conduct a course in Clinical Microscopy.

The Professor of Pathology considers it necessary to evolve some solution of the present problem of providing adequate space if the ideal quality of teaching is to be attained.

The Department contemplates the reconstruction of the autopsy room and the improvement of the facilities for the teaching of gross pathology and autopsy work. The museum is being organised upon a system which will make it more available for students and for small teaching groups. Many additions to technical methods have been introduced.

Professor Klotz considers it would be wise to reconsider the present relations which exist between the Toronto General Hospital and the Department with the view of increasing facilities for efficient work and accomplishment.

In the near future it will be necessary to rearrange the students' laboratories and lecture room. The library of the Department has been developed to the fullest extent possible with the available resources; the provision of a students' reading-room is urgently needed.

Arrangements are being made to offer working space to the junior members of the clinical departments who desire to work in Pathology and Bacteriology. The Department is desirous of encouraging to the fullest extent the participation of the clinical departments in special work in Pathology and Bacteriology so that a closer relation may exist between the laboratories and the clinics.

We note with regret the resignation of Dr. H. B. Maitland from the staff, which took effect at the termination of the session.

Department of Pathological Chemistry:—The outstanding feature of the Department in the past session has been the connection established between the Department of Obstetrics and Gynaecology by the organisation of a metabolic ward in the Burnside Lying-in-Hospital for the study of the toxaemias of pregnancy. Dr. H. B. VanWyck has acted as liaison officer between the Departments, and much valuable work has been done in the collection of accurate data on this pathological condition. The work of Miss K. Drew is to be commended in this connection. Mr. B. A. Eagles has conducted a series of observations in the creatine content of brain and muscle, and Mr. G. Hunter has continued his work on the study of carnosine.

The conclusions drawn from previous work on nausea and vomiting of pregnancy have been verified during the past year by observation of a new series of cases.

The staff of the Department has remained unchanged.

Department of Preventive Medicine and Hygiene:—The staff at present consists of ten persons, six of whom are on a full-time and four on a part-time basis. The total number of students, graduate and undergraduate, has been 230. In addition to undergraduate teaching, a course of lectures, laboratory work, demonstrations and field work has been given graduates in Medicine, leading to the Diploma of Public Health; and in addition a course of lectures, demonstrations and laboratory work for students in the first year in the Department of Public Health Nursing, and a course of study in major and minor subjects for graduate students (registered in the School of Graduate Studies) leading to the degrees of Ph.D. and M.A.

As in previous years, research work and investigations conducted by members of the staff have been carried on in the Research Division of the Connaught Laboratories, the work of which is described elsewhere in the President's Report.

Elsewhere in this report will be found a statement regarding the munificent gift from the Rockefeller Foundation for the establishment of a School of Hygiene in the University of Toronto.

In the preliminary science Departments of Biology, Chemistry and Physics, we may note the satisfactory and efficient training provided for undergraduates in Medicine. These courses, specially adapted for students in Medicine, continue to be of the highest possible value in the preliminary science training of medical students in the University.

The Department of Radiology, which was organised a year ago, is making excellent progress and is providing training of a high order both for graduate and undergraduate students.

Graduate Study:—The Faculty has made provision for graduates who wish, at any time, to engage in special work, either in the clinics or in the laboratories. From time to time practitioners desire an opportunity to get abreast of recent methods in modern scientific medicine. A committee has been appointed which undertakes to arrange courses, extending over weeks or months as the case may be, for those who desire to take advantage of the facilities available for this purpose. Last session, as heretofore, a post-graduate course in Paediatrics, in which twelve were registered, was conducted. There have also been short courses in Radiology. There is also a graduate course leading to a Diploma in Radiology extending over a period of one winter session of eight months.

Extension Lectures:—In conjunction with the Ontario Medical Association a series of lectures, demonstrations and clinics have been given, by members of the Faculty, to groups of practitioners in various parts of the Province. During last session 139 such communications were made before Medical Societies outside of Toronto. The work thus accomplished is regarded as highly successful and important.

Research:—A detailed account of research in the various departments of Medicine will be given elsewhere in the President's Report. Research is encouraged as never before and is under greater control; the staff is organised to facilitate work of this character. Some idea of the number of research problems undertaken and of their importance and value as contributions to scientific medicine may be gained by the references made to this matter in the brief account of the activities of each department as recorded in the present report.

(3) ANNUAL REPORT OF THE DEAN OF THE FACULTY OF APPLIED SCIENCE AND ENGINEERING

(*C. H. Mitchell, Esq., LL.D., D.Eng.*)

The general results of the work of this Faculty throughout the past session have been quite satisfactory. The work has been steadily and diligently prosecuted by both staff and students.

With smaller years more attention to individual students has been possible and the resulting efficiency has been quite noticeable. The quality of instruction also has been capable of improvement under these circumstances and it is believed that a higher standard has thus been set. In addition to this, improved methods of instruction have been developed in several important departments with the result that students have gained a wider general knowledge and have been trained in more independent thought on the subjects of applied science.

The advantages of the higher standard of entrance are now manifesting themselves in a definite manner. While these increases in requirements may result temporarily in a smaller number of students they are ensuring a still higher standard of student who, when he graduates, is better prepared for his professional career and is a greater credit to the University. This is particularly noticeable this session in the general quality of students in the first year.

Several changes have been made in the organisation within the Faculty for administrative and other purposes. Of these may be noted the change in names of two of the teaching departments, that of Applied Mechanics and Civil Engineering becoming "Civil Engineering: Municipal and Structural" and that of Surveying becoming "Civil Engineering: Surveying and Geodesy".

A further development of student self-government has taken place during the session, which, it is thought, will be beneficial. The functions of the Engineering Society and Year Organisations are now becoming more extensive and better defined in this respect. It is gratifying to observe the more diligent application of the students to their work compared with several years ago, the non-productive student activities having considerably decreased.

Efforts were continued this session toward assisting the movement for graduate employment in this Faculty. The success attending last year's effort was very encouraging and at the present writing that of this year is equally so. It is gratifying to see that these efforts in time and money expended are bringing to the University various acknowledgments of practical value as well as prestige.

The research work prosecuted under the School of Engineering Research has again been highly satisfactory. An extended outline of this is given in a separate report but it is desirable to point out the very gratifying relation and co-ordination of this work with that of instruction in the regular undergraduate and graduate courses carried on in the Faculty. While the research work has been of large volume and has taken considerable time of the various members of the staff there has been but little interference with the regular work. On the contrary, the beneficial effect on both staff and students has been most marked. Most members who are prosecuting researches are at pains to incorporate certain of the research work into the regular work of instruction of the fourth year and even of the third year, with beneficial results. This is an incentive to the students as well as to the researchers.

Exchange of lectures with other universities has again been carried out this year with good results, especially in the Departments of Mining and Metallurgical Engineering. A development of this has been a lecture tour by the Professor of Mining Engineering to various engineering colleges and technical societies of Canada and the United States, at their request, presenting certain valuable subjects in Mining Engineering in which research is being carried out here.

Valuable fellowships in research work have been presented to the University for work in this Faculty, and these have been received with the highest appreciation of their value in the development of the country. The best thanks of the University are due the generous donors for these. These fellowships comprise one from the Hollinger Consolidated Mining Company for the year and one from the Nipissing Mining Company in perpetuity, both in Mining subjects; another has just been donated by Mr. A. R. Kaufman for the coming year in Town Planning.

The most notable addition to equipment during the year has been the new Aerodynamics Laboratory which was opened in February. The wind channel formerly installed in the Hydraulics Laboratory has been almost doubled in capacity and is now contained in a special building, the erection of which was made possible by a grant from the Department of National Defence through the Research Council at Ottawa.

It is gratifying to observe the valuable services the various members of the staff are rendering in their general activities outside the University. Many have taken prominent part in the work of professional and general organisations, scientific and otherwise, and have not only benefitted themselves but have brought much credit to the University. In carrying on outside professional practice certain members have also brought gratifying notice to the University. It is considered that members of the staff should be encouraged to do such professional work provided it does not interfere with their duties or efficiency in the University itself; in fact there is great advantage from the University's point of view in professors keeping in touch with practice in this manner.

During the year the University has lost the services of Professor J. McGowan, who for many years has been a valued member of the staff in this Faculty and who has retired on account of ill-health.

(4) REPORT OF THE DEAN OF THE FACULTY OF FORESTRY

(*Dr. C. D. Howe*)

The Faculty had at the close of the year an enrolment of 43 students. The First Year class was small, doubtless owing to the raised entrance requirements. The smallness in numbers in the Faculty has been more than offset by the quality. The percentage of students who passed their year without any conditions has increased materially in the past two years; consequently, the number who failed to make their year is decreasing, being only 5 per cent. for this past year, of the total number enrolled.

Twelve men were graduated and all except one received permanent positions before graduation. Four men of this year's graduating class are employed by the Ontario Forestry Branch, two by the Dominion Forestry Branch, four by pulp and paper companies, and one is in the Provincial Government service outside of forestry work.

The Ontario Forestry Branch, as has been the case in the past few years, is employing the largest number of our undergraduates during the holidays since the

Government is continuing its survey of forest resources in the Province. Eighteen men are engaged in the work this summer. Six undergraduates are working with pulp and paper companies, and three with the Dominion Forestry Branch. Three of the men, for various reasons, are not working in the woods this summer.

The year has been epoch-making for the Faculty in the assurance of a new building adequate in space and equipment for the proper development of the Faculty.

(5) REPORT OF THE ONTARIO COLLEGE OF EDUCATION

(*Dr. W. Pakenham*)

While the total registration decreased from 422 in 1922-23 to 348 in 1923-24 the actual registration in courses in the College of Education increased by 74. Students registered in advanced courses in Pedagogy have now been transferred to the School of Graduate Studies. The increase of the number of Bachelors of Applied Science, Agriculture and Commerce in the courses for High School Teachers' Certificates continues. The fact that the nine Canadian Provinces, England and the United States are represented in the attendance in the advanced courses in Education is convincing evidence of the need of a great central Canadian graduate school in Education.

The addition to the buildings of the College of Education are now complete. The new classrooms, assembly hall, gymnasium, and cafeteria are great boons to the instructors, student-teachers and pupils, who, to the number of one thousand, live and work in the College of Education throughout each day of the Session. But the playgrounds of the University Schools are still very inadequate. The significance of play in modern education makes the provision of suitable grounds the first need and the next line of progress of the College of Education.

As the primary purpose of the College of Education is to train High School teachers for Ontario, the University Schools must function primarily as a demonstration and practice school for prospective High School teachers, and must be primarily a model High School. To this end the headmaster strives to approximate the University Schools to an Ontario High School in staff, organisation and courses. But within the limits of this main purpose, the University Schools should be an experimental school. To this end the headmaster has fostered experiments in the teaching of spelling, history, civics, composition, literature, and foreign languages. Evidence that some degree of success has been achieved is not lacking. The applications for admission to the Schools far exceed the accommodations. Indeed so numerous and so urgent are the applications that the headmaster is puzzled to find a formula by which to accept or reject. The Schools are the schools of the Province, not of Toronto, and must regard the sons of all citizens of the Province as eligible applicants for admission. Exacting educational qualifications might fill the Schools with a select group of very bright boys but would destroy their character as typical schools. Priority of application provides, perhaps, the best formula but priority alone might compel the Schools to accept the unsatisfactory and rejected pupils of other schools. Possibly the safest formula will be found in a compromise between high educational qualifications and priority of application. To devise that compromise and to administer it without friction will require great tact and patience on the part of both parents and staff.

Early in the Session Dr. D. E. Hamilton, assistant professor in Methods in Classics, was transferred to the Department of Greek in University College. Mr. J. O. Carlisle, M.A., instructor in the University Schools, was promoted to the vacant post in the College of Education, and Mr. J. H. Mills, M.A., of Parkdale Collegiate Institute, Toronto, was appointed to Mr. Carlisle's instructorship in the University Schools. Mr. C. E. Phillips, B.A., of Harbord St. Collegiate Institute, Toronto, was added to the staff of instructors in the University Schools during the Session.

(6) REPORT OF THE DEAN OF THE FACULTY OF MUSIC

(Dr. A. S. Vogt)

The number of students registering in connection with the courses leading to the degree of Bachelor of Music has again shown an appreciable increase over any previous season. The total was 56 against 44 for 1921-1922. There were 33 enrolled for the First Year, 18 for the Second, and 5 for the Third. The unusually large number of students registering for the First Year is a most gratifying feature of the season's enrolment.

During the months of January, February and March, eighteen lectures were delivered by members of the Faculty of Music, and in addition four lectures were delivered by E. F. Burton, Esq., B.A., Ph.D. The titles of these lectures, with the dates on which they were delivered, were as follows:—

Healey Willan, Esq., Mus.Doc.:
11 a.m.—Lecture Hall, Toronto Conservatory of Music.
January 14—"The Rules of Part-writing."
January 28—"Modulation."
February 11—"Harmonisation of Melodies."
February 25—"Auxiliary Notes and their Treatment."
March 10—"Counterpoint in two parts."
March 24—"Counterpoint in combined species."

Albert Ham, Esq., Mus.Doc.:
4.30 p.m.—Room 37, University Main Building.
January 11—"The Cantatas of J. S. Bach."
January 25—"English Cathedral Music."
February 7
February 14 "The Musical Sentence and the Evolution of Sonata Form."

F. A. Mouré, Esq., Mus.Doc.:
4.30 p.m.—Room 37, University Main Building.
January 21—"Haydn, Mozart and Beethoven."
February 4—"Clementi and some of his Contemporaries."
February 18—"The modern British School."
March 3—"Gregorian Modes and Mediæval Music."

H. A .Fricker, Esq., M.A., Mus.Doc.:
4.30 p.m.—Room 37, University Main Building.
January 18—"The Choral Symphony"—Beethoven.
February 1—"The Mass in B Minor"—J. S. Bach.
February 29—"The Orchestration of Choral Work."
March 14—"Form in Choral Music."

E. F. Burton, Esq., B.A., Ph.D.:
4.30 p.m.—Room 41, Physics Building.
February 22—"Production and Propagation of Sound by Vibrational Motion."
March 7—"Scientific Determination of Standards of Pitch."
March 17—"The Motion of Air in Organ Pipes"; "The Stationary Wave."
March 21—"The Physical Aspect of the Quality of a Musical Note."

In spite of adverse economic conditions throughout Canada, the year again witnessed a substantial growth in the Local Examinations of the Toronto Conservatory of Music. This may be fairly regarded as an indication of the consistent development of the national prestige and influence of the Conservatory as a pre-eminent factor in the musical-educational life of the Dominion.

The number of candidates enrolling for the Conservatory's Local Examinations during the year totalled 12,115. These were distributed as follows: Piano, 8,395; organ, 22; singing, 372; violin, 440; sight-singing, 81; theory of music (rudiments, harmony, counterpoint, etc.), 2,803; 'cello, 2.

The organ recitals given during the season by the University organist, Dr. F. A. Mouré, proved a fine contribution to the artistic life of the University. As in former seasons, Dr. Mouré's programmes were chosen with admirable taste and with appropriate recognition of all leading schools of organ composition. The following composers were represented in the series: Bach, Handel, Mendelssohn, Widor, Guilmant, Rheinberger, Elgar, Hollins, Rimsky-Korsakoff, Liszt, Wagner, Pierne, Faulkes, Shelley, Yon, Lemare, Liadoff, Borowski, and others.

One is pleased to note an unusually brilliant and memorable series of nine o'clock Sunday evening recitals in Hart House, which aroused the keenest interest of music-loving students, and enlisted the voluntary co-operation of many of the leading artists of the city. Numerous works of outstanding importance were presented, and a remarkably high standard of artistic excellence was maintained throughout.

The musical impulses of students are finding expression in more or less serious efforts to establish worth-while organisations devoted to study of choral and orchestral music, and it is hoped that the practical achievements of those interested would in due time prove worthy of the University.

(7) REPORT OF THE DEAN OF THE SCHOOL OF GRADUATE STUDIES

(*Professor J. Playfair McMurrich, LL.D.*)

In the second year of its existence, now drawing to a close, the School of Graduate Studies has more than maintained the position it arrived at in its inauguration as an important factor in the activities of the University. Last year the number of students registered in the School was 300; this year the number rose to 367. According to their geographical distribution the students may be classified as follows:—

Residents of the Province of Ontario	317
Residents of other Provinces	37
Residents of other countries	13

Of the 367 students registered for the past year 280 received their undergraduate training in the University of Toronto and 87 in other Universities. 78 students were members of the teaching staff of the University and 26 others were holders of fellowships, but not engaged in teaching.

The distribution of students in the various Departments, according to the subject chosen as the major subject, was as follows: Anatomy, 1; Architecture, 2; Astronomy, 1; Biochemistry, 8; Biology, 7; Botany, 14; Chemical Engineering, 5; Chemistry, 23; Civil Engineering, 2; Classics, 9; Educational Theory, 3; English, 36; Food Chemistry, 3; Geology, 4; German, 1; History, 14; Household Science, 3; Hygiene, 5; Mathematics, 10; Mineralogy, 2; Mining Engineering, 2; Oriental Languages, 8; Pathology and Bacteriology, 1; Pathological Chemistry, 2; Philosophy, 32; Physics, 13; Physiology, 2; Political Science, 24; Psychology, 9; Romance Languages, 18; Zymology, 1.

In addition there are 86 students registered in the Department of Education; 5 in the Department of Medicine; 4 in the Department of Surgery; and 5 students registered for Professional Degrees.

The degrees sought are shown in the following table:

Candidates for the degree of Ph.D	68
Candidates for the degree of M.A	150
Candidates for the degree of M.D	3
Candidates for the degree of Ch.M	4
Candidates for the degree of M.A.Sc	9
Candidates for the degree of M.Arch	2
Candidates for the degree of C.E	4
Candidates for the degree of M.E	1
Candidates for the degree of D.Paed	86

During the session 15 students completed the requirements for the degree of Ph.D.; 74 those for the degree of M.A.; 2 those for the degree M.D.; 7 those for the degree M.A.Sc.; 2 those for the degree M.Arch.; 3 those for the degree C.E.; and 3 those for the degree D.Paed.

The titles of the theses submitted for the degree Ph.D. were as follows:

F. B. Adamstone: "The Distribution and Economic Importance of the bottom Fauna of Lake Nipigon."
G. H. Berkeley: "Studies on Botrytis."
H. Borsook: "The Synthesising Action of Pepsin."
J. T. Burt-Gerrans: "The Diffusion of Copper in Solutions of Copper Sulphate containing Sulphuric Acid."
D. M. Findlay: "The Reaction of Aqueous Alcoholic Solutions." "Insulin and some basic dyestuffs."
R. E. Foerster: "Studies in the Ecology of the Sockeye Salmon."
Miss C. W. Fritz: "Cultural Criteria for the Distinction of Wood-destroying Fungi."
A. H. Leim: "The Life History of the Shad (Alosa sapidissima) with reference to the factors limiting its abundance."
F. R. Lorriman: "Some Derivatives of Acenaphthene."
Miss F. I. MacKinnon: "The Philosophical Writings of Henry More."
P. J. Moloney: "On the Purification of Insulin."
J. A. Morrell: "Kinetics of Arginase."
Miss E. M. Taylor: "The Action of Acids on Yeast."
P. S. Warren: "The Geology of the Banff Area."
A. E. R. Westman: "The Relation between current voltage and length of carbon arcs."

The fellowships for graduate students that were provided last year by the generosity of the Canadian Pacific Railway, the Imperial Oil Company, Sir Edmund Osler, Sir Edward Kemp and Colonel R. W. Leonard, have been renewed for the session 1924-1925. The following are the appointments to these fellowships for the coming year, together with the universities from which the appointees graduated and the departments in which they will pursue their studies:

1. W. R. Westgate, B.A., Manitoba, Classics.
2. A. L. Wheeler, British Columbia, English.
3. Miss M. C. Archibald, B.A., Alberta, Romance Languages.
4. D. C. Morrow, B.A., Manitoba, Mathematics.
5. Miss J. E. Murray, M.A., Saskatchewan, History.
6. Miss M. M. Morrison, M.A., Dalhousie, Philosophy.
7. Miss D. H. Walsh, B.A., British Columbia, Philosophy.
8. Miss V. E. Dunbar, M.A., British Columbia, Biochemistry.

The Alexander Mackenzie Fellowships in Political Science and History have been awarded to:

1. A. B. Corey, B.A., Acadia, History.
2. C. W. Lightbody, B.A., Saskatchewan, Political Science.

The James H. Richardson Research Fellowship in Anatomy has not been awarded up to the present time.

The George Brown Memorial Fellowship has been awarded to:
Miss E. H. Chant, B.A.
The Ellen Mickle Fellowship has been awarded to:
B. I. Johnstone.

The Senate has accepted the generous offer of the Nipissing Mining Company and Mr. A. R. Kaufman to establish fellowships in Mining Engineering and Town Planning respectively. Appointments to these fellowships will be made later.

(8) REPORT ON RESEARCH

Anatomy, under Direction of Professor J. P. McMurrich

During the past session Professor Watt has continued his studies on bone-formation and calcification, following out the problems exposed by his earlier work on this subject.

Professor Linell has completed the study of an interesting case of anomalous development of the cerebral cortex and the results are now in process of publication. In addition he has worked, in collaboration with others, at the following problems: (with Dr. Burnham) An Experiment Study of Otitis Media; (with Dr. K. G. McKenzie) An Experimental Study of the Etiology of Choked Disc; and (with Dr. B. S. Cornell) A Histological Study of the Nervous System of Rabbits infected with Bacillus welchii.

Dr. H. G. Willson continued his study of the terminal branchings of the bronchii in certain of the lower mammals, notably the Armadillo, Ornithorhynchus and Echidna.

Mr. W. C. M. Scott has continued his investigation of the development of the primary islands of Langerhans in certain fishes and expects to complete the work this summer at the Biological Station at St. Andrews, N.B., where the necessary material for study is available. He has also completed a study of a case of anomalous thyroid development in an Elasmobranch fish, and the results are now in hand for publication.

Dr. Mary I. Tom has begun a study of the arrangement of the peritoneum in an early human embryo.

Biochemistry, under Direction of Professor A. Hunter

The researches undertaken during the past year by the staff in Biochemistry have dealt mainly with two general topics: (1) certain phases of the chemistry of proteins; (2) the action of enzymes.

(1) Professor Hunter and Mr. Borsook have completed a study of the distribution of nitrogen in Globin, the results of which were published in the September number of the *Journal of Biological Chemistry.*

(2) Professor Hunter and Mr. J. A. Morrell have accumulated a mass of data with reference to the action of the enzyme arginase. Many of these have been incorporated in a thesis presented by Mr. Morrell and accepted by the School of Graduate Studies in partial fulfilment of the requirements for the degree of Ph.D. Others will be published, it is hoped, in the near future. One practical outcome of the work is the elaboration of a method for the quantitative determination of the amino-acid arginine.

(3) Professor Hunter and Mr. Borsook have made a determination of the approximate dissociation constants of arginine.

(4) Mr. C. Morrell has determined the rate at which arginine is decomposed by potassium hydroxide at the temperature of boiling water.

(5) Mr. Dauphinée has perfected a colorimetric method for the determination of urea, which has been further applied as a method for the determination of arginase. By its use he has concluded a preliminary investigation of the distribution of arginase in the animal kingdom, particularly among the fishes. This work was partly carried out in collaboration with Professor Hunter at the Dominion Biological Station at Nanaimo, B.C.

(6) Dr. Eadie has continued his work on the effects of insulin on carbohydrate metabolism and this work has again been done in collaboration with Professor Macleod and Professor A. Hunter. A report on the effect of insulin on glycolysis appeared in August in the *American Journal of Physiology*. The respiratory exchange following the administration of insulin was studied, an account of which is now in press. Work was continued on the changes in rotatory power of blood filtrates after insulin, and a preliminary note appeared in the *British Medical Journal* in July. During most of the year an investigation of the carbohydrates of the muscles and liver was carried out, but many technical difficulties were encountered and this work is still in progress. An outline of what had been accomplished was presented to the Royal Society of Canada at their May meeting.

(7) The following work has been carried out under the direction of Professor Wasteneys:

Mr. Borsook has continued to work on the problem of the enzymatic synthesis of proteins. He has succeeded in effecting synthesis of protein in peptic digests by means of the enzymes pepsin and trypsin. The optimum conditions for these reactions have been established and an investigation of the kinetics has been concluded. The results have been embodied in several papers which are now in the press.

Miss J. McFarlane has completed a study of the peptic hydrolysis of albumin. She has succeeded in demonstrating that the products found in the digest arise from the protein molecule directly and not by a secondary hydrolysis of products first formed. She has employed in this investigation the method of fractional analysis worked out by Professor Wasteneys and Mr. Borsook.

Miss V. Dunbar has investigated the kinetics of peptic hydrolysis. She has succeeded in proving, through the use of a direct method of measurement, that the velocity of protein hydrolysis is in direct linear proportion to the concentration of enzyme for early stages of digestion.

Mr. C. A. Morrell has carried out an examination of the conditions governing the optimum temperature for peptic hydrolysis. The investigation, which is not yet completed, indicates a hitherto unrecognized influence of the backward reaction in determining the optimum temperature.

Dr. A. M. Goulding has obtained data of practical value to workers in the field of digestion by determining precisely the effects of reaction, time, and temperature on the destruction of pepsin.

Biology, under Direction of Professor B. A. Bensley

Following is a summary of investigations carried on during 1923-24: E. M. Walker, monographic study of North American *Somatochlora*, nearing completion; internal structure of primitive orthopteroid *Grylloblatta*; in collaboration with Miss N. Ford, faunistic study of Odonata of Thunder Bay. A. G. Huntsman, oceanic circulation; Belle Isle Strait and its effect on the fauna and fisheries of the region. A. H. Leim, life history of the shad; M. I. Sparks, planktonic Amphipoda of Newfoundland region. W. J. Clothier, Pteropoda of Newfoundland region. D. W. Whaley, Ctenophora of Newfoundland region. Miss V. Davidson, planktonic Ostracoda of Atlantic waters. W. A. Clemens, limnological survey of Lake Nipigon; studies of the rate of growth of fishes; in collaboration with J. R. Dymond and N. K. Bigelow, food of fishes in Lake Nipigon.

W. J. K. Harkness, food and growth of sturgeon. F. B. Adamstone, bottom fauna of Lake Nipigon. H. H. MacKay, shallow water plankton. J. L. Hart, variability of lake whitefish. N. K. Bigelow, plankton analysis and food organisms of *Catostomus*. R. E. Foerster, plankton studies in relation to food of sockeye salmon young. A. K. Leonard, ecology of speckled trout. A. F. Coventry, experimental modification of development in lower vertebrates. W. H. T. Baillie, study of third trochanter in relation to muscle attachments, interaction of secreting glands. J. W. MacArthur, preparation of material for studies in heredity; in collaboration with the late Dr. C. K. Clarke, heredity of Huntington's chorea. E. H. Craigie, monographic study of the finer anatomy of the brain of the albino rat; vascularity of brain stem and cerebellum, critique of operative technique. Notes and papers from the Royal Ontario Museum of Zoology include: L. L. Snyder, fourteen articles on birds and mammals; in collaboration with J. L. Baillie, Jr., birds and mammals of Algonquin Parks. E. B. Logier, insect studies.

Botany, under Direction of Professor J. H. Faull

Research students in Botany for the session 1923-24 have come to us from seven institutions, including the University of Toronto. Most of these have been interested primarily in the pure science, but some have given first place to botanical investigations bearing on problems in Agriculture and Forestry. Among the financial aids to individual students, two awards were made by the Advisory Council of Scientific and Industrial Research, and one by the National Research Council of the United States—a renewed Fellowship provided by the Texas Gulf Sulphur Company. Five graduate students in Botany presented themselves for degrees at the close of the session, two were awarded the degree of Doctor of Philosophy, and three the degree of Master of Arts.

During the course of the year many requests for information have been received from outside the University, and some for assistance in the solution of problems. Work has been undertaken on some of the latter, such as (1) prolbems relating to Horticulture, (2) the effect of uninoculated and inoculated sulphur on the potato scab organism, (3) the utilisation of defective balsam and spruce in the making of newsprint. In the last instance co-operative investigations based on types worked out by the Department have been sponsored by the Canadian and the American Pulp and Paper Associations, the Newsprint Service Bureau, the U.S. Forest Products Laboratory, and two Canadian Pulp and Paper Companies.

The following is a tabulation of the researches completed during the year or in progress; the publications from the Department appear in another part of this report.

I. Cryptogamic Botany, Mycology and Pathology under the Direction of Professor J. H. Faull.

Berkeley, G. H.
  (1) Mycological and biochemical studies on species of Botrytis (the latter in the Department of Biochemistry). This work has been finally brought to completion.

Chamberlain, G. C.
  (2) Studies on *Venturia inequalis,* the cause of apple scab.

Darker, G. D.
  (3) Morphological, cultural, and taxonomic studies on the Hypodermataceae.

Faull, J. H.
(4) The diseases of pulpwoods.
(5) Studies on a group of rust fungi—the Pucciniastreae.

Faull, J. H. and F. B. Adamstone
(6) A needle disease of Abies balsamea.

Faull, J. H. and G. D. Darker
(7) Cultural studies on the Hyalopsora rusts.

Faull, J. H. and Miss C. W. Fritz
(8) Diseases of spruce.

Faull, J. H. and L. M. Hunter
(9) Histological studies on the pycnia and the mycelia of the rusts of Abies.

Faull, J. H. and Miss Irene Mounce
(10) On *Stereum sanguinolentum*, the cause of "sapin rouge."

Fritz, Miss C. W.
(11) Cultural criteria for the distinction of wood-destroying fungi. An extensive thesis has been completed and published.

Mounce, Miss Irene
(12) The biology of *Fomes pinicola*.

Walker, A. R.
(13) Life history studies on a species of Botrytis.

2. Pathology and Plant Physiology, under the Direction of Dr. G. H. Duff and Professor J. H. Faull

Graham, Miss Catherine
(14) The utilisation of inoculated and uninoculated sulphur in the control of the potato scab organism, *Actinomyces scabies*. Extensive field experiments in various parts of Canada have supplemented the work in the laboratory. This research is being carried forward in the field during the summer of 1924 by Mr. J. M. Hamilton, B.Sc.Agr., under the advice of Miss Graham.

Racicot, H. N.
(15) The effect of injury to the crown of a plant upon the health and development of the root system.

3. Plant Physiology, under the Direction of Dr. G. H. Duff

Duff, G. H.
(16) Carbohydrate metabolism in Phaseolus.
(17) Studies on certain respiratory pigments.

Racicot, H. N.
(18) Growth correlation in the bean.

4. Phanerogamic Botany, Oecology and Genetics and Plant Breeding under the Direction of Professor R. B. Thomson

Valuable research and class material was obtained during the year from South Africa, Australia and New Zealand, and important connections made for securing future material by Professor Thomson on an expedition for which financial help was provided by grants from the Research Fund of the University, from the American Association for the Advancement of Science, and from the University of Western Ontario, Mr. D. A. Dunlap and Col. Leonard supplementing this fund by private donations.

(*a*) Phanerogamic Botany.

Wright, Miss J. G.
(19) The pit-closing membrane of the lower conifers.

Hart, N. C.
(20) The origin of resin canals in the wood of the pines.

Ansley, J. W.
(21) The origin of primary resin canals in the root of the spruce.

Sifton, H. B.
(22) Anatomical study of *Cicuta maculata* (cowbane).

Thomson, R. B. and H. B. Sifton
(23) The resin canals of spruce wood.
(24) Wound reactions of the Sequoias.
(25) The season of maximum response to wounding in the hemlock.
(26) The stimulation of resin production by chemical means.

Simpson, A.
(27) Records of the growth of plants, their hardiness, adaptability to local conditions, and methods of propagation.

(*b*) Oecology.

Thomson, R. B. and H. B. Sifton
(28) The structure of the primary wood and cortex of the root in relation to environmental factors.

McConkey, O.
(29) Some factors influencing production in the Oat.

Sifton, H. B.
(30) The physiology and oecology of germination.

(*c*) Genetics and Plant Breeding.

Partridge, J. A.
(31) The perennial and annual habits in crosses.

Chemistry, under Direction of Professor W. Lash Miller

Twenty-four students were engaged in research during the past winter under the direction of the professors of this department.

The degree of Doctor of Philosophy was awarded to four of them, viz: Mr. J. T. Burt-Gerrans (*On concentrations at the cathode during electrolysis with direct current*, Prof. W. Lash Miller), Mr. F. Lorriman (*On derivatives of acenaph-*

thene, Prof. F. B. Allan), Miss E. M. Taylor (*The action of acids on yeast,* Prof. W. Lash Miller), and Mr. A. E. R. Westman (*On the relation between current, voltage, and the length of carbon arcs,* Prof. W. Lash Miller). Three other honour graduates in Chemistry, viz.: Messrs. D. M. Findlay, P. G. Moloney, and J. A. Morrell, were awarded the degree of Doctor of Philosophy from other departments of this University; and one, Mr. G. B. Frost, from the University of California.

Four obtained the degree of Master of Arts by research, viz.: Messrs. C. M. Jephcott, M. J. Mulligan, R. A. Prosser, and C. W. Sweitzer.

Mr. G. A. Hoover was awarded the 1851 Exhibition Scholarship.

The following list gives the subjects of research:

J. Cryer:—The reaction of monobasic aromatic acid anhydrides with benzene and aluminium chloride.
Miss E. V. Eastcott, M.A.:—The formation of bios in infusions.
W. S. Funnell, M.A.:—The vapour pressures of solutions of phenol and water.
J. D. Garrard, M.A.:—The preparation of dust-free liquids.
A. R. Gordon, M.A.:—Polarisation at the cathode during electrolysis of solutions of copper salts.
G. A. Hoover, M.A.:—Analysis of vapours by means of the interferometer.
W. B. Hope:—The heats of dilution of solutions of phenol in water.
H. R. Hugill:—The maximum density of mixtures of particles of different sizes.
C. M. Jephcott, B.A.:—Quinolinic anhydride with aromatic hydrocarbons and aluminium chloride.
F. B. Kenrick, Ph.D. and W. H. Martin, Ph.D.:—Scattering of light by iodine solutions.
F. Lorriman, M.A.:—Some derivatives of acenaphthene.
G. H. W. Lucas, Ph.D.:—Chemical study of the antineuritic vitamin from rice.
W. G. Merrill, B.A.Sc.:—Determination of the transport number of zinc.
P. McVicker:—Sulphation of lead accumulators.
M. J. Mulligan, B.A.:—Conductivity of annealed and unannealed soda-lime glass.
R. A. Prosser, B.A.:—Phthalic anhydride with brombenzene and aluminium chloride.
J. W. Rebbeck, M.A.:—Sorption of water by soda-lime glass.
H. desB. Sims, B.A.:—Preparation and purification of Bios I.
E. M. Sparling, B.A.:—Action of charcoal on Bios II.
C. W. Sweitzer, B.A.:—Light scattering by aqueous salt solutions.
Miss E. M. Taylor, M.A.:—The action of acids on yeast.
R. B. Walker, B.A.:—Split type alternating current arcs.
A. E. R. Westman, M.A.:—The relation between current voltage and arc length III Alternating currents.
C. Woodburn:—Comparison of storage battery separators.
K. S. Wyatt, M.Sc.:—Supersaturated solutions of gases.
C. M. Young:—Electrodeposition of nickel on aluminium.

Geology, under Direction of Professor W. A. Parks

A. By Professor A. P. Coleman (Professor Emeritus):
  (1) A study of Eocene Tillites in Colorado.
  (2) A study of Pleistocene conditions near the southern boundary of the Labrador ice-sheet and of glaciation in Vancouver island.
  (3) An examination of unglaciated areas in Cape Breton island and in Newfoundland.
  (4) Preparation of a book on "Ancient Ice Ages."

B. Under the immediate supervision of Professor W. A. Parks:
- (5) Collecting expedition to the valley of the Red Deer river.
- (6) Descriptions of a new genus of dinosaur and of the skeleton of a previously known species.
- (7) Detailed stratigraphy of the Toronto district.
- (8) Professor P. S. Warren.—Stratigraphy and Palaeontology of the Banff area, Alberta.
- (9) Dr. W. S. Dyer.—Report on the Minto Coal Basin, New Brunswick, prepared for the Geological Survey of Canada.
- (10) Miss M. Fritz, M.A.—Palaeontology of the Ordovician section at Meaford, Ont.

C. Under the direction of Professor E. S. Moore:
- (11) The direction of cleat in coal seams.
- (12) The geological age of the ores of the Homestake mine.
- (13) The origin of the Precambrian oolitic iron ores.
- (14) T. L. Gledhill, M.A.—Rock relationships in the Sturgeon Lake region, Ontario.

History, under Direction of Professor G. M. Wrong

The following students were engaged in research work:

A. For the degree of Masters of Arts:
- Ayearst, M. J., B.A. (Toronto), "A Comparison of French and English Architecture during the Period of the Renaissance." (Degree conferred after consultation with the Faculty in Architecture.)
- Bell, H. J., B.A. (Toronto), "The Navy of the Tudor Period." (Degree conferred.)
- Gallagher, E. O., B.A. (Toronto), "The Development of Utilitarianism in England as a Social Philosophy during the Nineteenth Century." (Degree conferred.)
- Hill, E. A., B.A. (Manitoba), "The History of the Canadian Treaty-Making Powers." (Degree conferred.)
- Little, W. J., B.A. (Toronto), "The Opinions of John Wesley in Politics and Economics."
- McClenaghan, Miss J. V., B.A. (Toronto), "The Administration in Canada of Lord Dalhousie." (Degree conferred.)
- Macfarlane, Miss E. A., B.A. (Saskatchewan), "The History of Hudson Bay from the Earliest Times to 1713." (Degree conferred.)
- Murray, Miss J. E., B.A. (Saskatchewan), "A Study of the Native Peoples who dwelt on the St. Lawrence at the time of its Discovery and Earliest Exploration." (Degree conferred.)
- Pickford, Miss M. A., B.A. (Toronto), "The Loyalists in Upper Canada."

B. For the degree of Doctor of Philosophy:
- Dorland, A. G., M.A. (Queen's), "The Early History of the Society of Friends in Ontario."
- Kerr, W. B., B.A. (Oxon.), M.A. (Toronto), "The Reign of Terror in France."
- Sage, W. N., M.A. (Oxon.), "The Early History of the Province of British Columbia."

Household Science, under Direction of Professor A. L. Laird

(1) On the Breadmaking Qualities of Flour.
By Miss C. F. Valentine, B.A.

Following a thorough survey of the literature, samples of nine commercial grades of flour were subjected to chemical analyses and baking tests. A comparative study of the results indicates that there is not definite relationship between the quality of flour and the following factors: gluten content, expansive power of the gluten, crude gliadin, acidity, total nitrogen, water retaining power, gluten from fermented dough.

This investigation, while by no means exhaustive, corroborates the findings of others, and indicates that the quality of flour cannot be determined definitely by any one factor. Properly conducted baking tests appear to be the quickest and most satisfactory method of determining the baking quality of a flour.

(2) On the Effect of Diet on Urinary Acidity.

By Miss A. E. Pope, M.Sc.

The character of the food, depending on the predominance of acid or of base-forming elements, is known to markedly affect the reaction of the urine. This study has shown that the effect appears within a few hours after each meal. Of foods studied, those found to be efficient in reducing the acidity of the urine were: a combination of milk, orange juice and tomato, or of milk, orange juice and apple, carrots, spinach, molasses. It was found that the efficacy of dried figs was not proportional to their potential alkalinity. It is hoped to continue this study.

Mineralogy, under Direction of Professor T. L. Walker

During the year the members of the staff in Mineralogy have continued their investigations of Canadian minerals. Professor Ellis Thomson has devoted most of his available time to the study of a series of minerals from the Cobalt district, utilising our splendid equipment for the examination of opaque minerals in reflected light. Some results of unusual interest will appear shortly in a paper he is preparing in association with Dr. J. Mackintosh Bell on the mineralogy as shown in the veins at the Keeley mine.

Professors T. L. Walker and A. L. Parsons have continued their studies of the minerals from Cobalt. Two minerals new to science have been discovered and described—one found along with the ordinary cobalt bloom has been named ferrisymplesite, and the other, an oxidation product from the Keeley mine, is to be known as chapmanite, in honour of Professor E. J. Chapman, from 1853 to 1895 professor of mineralogy in the University.

In Canada there are numerous known occurrences of minerals containing uranium and radium, but up to the present no deposits of economic importance have been developed. During the last two years these radium minerals have been carefully studied. Two new occurrences have been found, one of them containing a radium mineral new to science. In addition to the economic interest, radium minerals have a special scientific value in indicating the age of the deposits in which they occur. Studies along this line have been continued.

The month of June was devoted to field work in the study of the phosphate deposits in eastern Ontario.

Without the help of Mr. E. W. Todd, Research Assistant in the Department of Mineralogy, much that has been done could not have been attempted.

A list of papers published by the staff in mineralogy during the year will be found in this report.

Physics, under Direction of Professor J. C. McLennan

A. Researches under the direction of Professor J. C. McLennan, F.R.S., and communicated to the Royal Society of Canada, May, 1924.

(1) On the Luminescence of Nitrogen, Argon and other condensed gases at very low temperatures.

By Professor J. C. McLennan, F.R.S., and Mr. G. M. Shrum, Ph.D.

In this research it was found that solid nitrogen and argon when irradiated by electrons became luminescent. This luminescent spectrum of nitrogen consisted of the wavelengths $\lambda = 5556$ Å, $\lambda = 5617$ Å and $\lambda = 5654$ Å. The luminescent spectrum of solid argon included the wavelengths $\lambda = 5648.3$ Å and $\lambda = 5607.4$ Å. It was also found that after excitation ceased both nitrogen and argon phosphoresced brilliantly.

The phosphorescent spectrum of solid nitrogen consisted of the single wavelength $\lambda = 5231$ Å while that of solid argon consisted of the wavelengths $\lambda = 4750$ Å and $\lambda = 5300$ Å. The chief inference drawn from the experiments is that Vegard's theory that the green line in the spectra of aurorae originates in the element nitrogen is untenable.

(2) On a Special form of Metallic Dewar Flask.

By Professor J. C. McLennan, F.R.S., and Mr. G. M. Shrum, Ph.D.

In this research a special form of Dewar Flask was devised that could be made of German silver. This flask was used in the hydrogen liquefier to surround the liquefying coil and collect the liquid hydrogen before passing it on to other Dewar flasks. The use of this flask has greatly reduced the cost of operating the hydrogen liquefier and the loss of expensive Dewar flasks by breakage has been overcome.

(3) On the Absorption and Series Spectra of Lead and Tin.

By Professor J. C. McLennan, F.R.S., J. F. T. Young, Ph.D., and A. B. McLay, M.A.

The wavelengths of the arc absorption spectra of lead and tin in the ultraviolet region covered by quartz and fluorite spectrographs were investigated. Additions to and modifications in the schemes proposed by Thorsen and Grotrian of the series arc spectrum of lead have been found and the series arc spectrum of tin has been worked out and shown to be analogous to that of lead.

(4) On the Series and Ultraviolet Emission Spectra of Silicon.

By Professor J. C. McLennan, F.R.S., and W. W. Shaver, Ph.D.

The vacuum spark spectrum of silicon has been photographed in the extreme ultraviolet and several new lines belonging to the Si-IV spectrum observed. The arc and spark spectra have also been investigated between $\lambda = 2300$ Å and $\lambda = 1842$ Å. The vacuum arc spectrum has been photographed in the fluorite region. An analysis of the arc spectrum for series has been made and energy levels accounting for many of the arc lines have been deduced.

(5) On the extreme ultraviolet spectra of the alkali metals.

By W. W. Shaver, Ph.D.

The enhanced spectra of potassium, rubidium and caesium have been extended in the extreme ultraviolet region by a study with a fluorite spectrograph of the electrodeless discharge in vapours of these elements. In the case of sodium no spectral lines were found in the Schumann region. The spectra of rubidium and caesium were also investigated with a quartz spectrograph in order to study the region between the wavelengths Å and 2250 Å as previous investigations extended in the ultraviolet only to the latter limit.

(6) Note on the enhanced Spectra of Phosphorus and Sulphur in the Extreme Ultraviolet.

By W. W. Shaver, Ph.D.

The spectra of the electrodeless discharge in the vapours of phosphorus and sulphur were photographed with a fluorite spectrograph in an attempt to obtain evidence of a spectrum due to a highly ionised type of atom. The lines obtained with phosphorus were weak in intensity, but in the case of sulphur three strong doublets appeared.

(7) Variations in the structure of the Lithium Red Line λ = 6708 Å.

By D. A. Ainslie, M.A.

A critical study has been made of the structure of the lithium red line emitted in a vacuum arc. It has been shown that its structure varies with the arc current and with the vapour density. With increasing currents the structure of the line goes through the following stages: (1) a doublet, (2) a triplet, (3) a narrow quadruplet, (4) a second type of triplet and (5) a second type of quadruplet.

These changes are much more complex than those ordinarily observed in arc reversal and do not appear to be satisfactorily explained by absorption.

(8) On the Extreme Ultraviolet Spectra of a Number of Elements.

By R. J. Lang, Ph.D.

In this investigation the extreme ultraviolet spectra of some twenty elements not previously studied were photographed and their wavelengths determined. The spectra covered the region between λ = 2000 Å and λ = 200 Å.

(9) On Characteristic X-rays from Light Elements.

By Miss M. Levi, M.A.

An investigation into the method of electronic bombardment in a K and L levels in Lithium, Beryllium, Boron and Carbon. L levels in Fluorine, Sodium, Silicon and Chlorine. L and M levels in Scandium, Titanium, Vanadium, Chromium, Cobalt, Nickel.

(10) On the Fine Structure of the Band Spectra of Sodium, Potassium and a Mixture of Sodium and Potassium.

By H. Grayson Smith, M.A.

The band absorption spectra due to molecules of Na_2, K_2 and NaK have been photographed with a grating spectrograph, and an analysis has been made of the fine structure of some of the component bands of each spectrum, from the results of which the moments of inertia of these molecules have been calculated.

(11) On the Ultraviolet Spectra of Gallium and Indium.

By Miss Mollie Weinberg, M.A.

An investigation into the wavelengths of Gallium and Indium obtained with quartz and vacuum grating spectrographs in the region between λ = 2300 Å and λ = 150 Å.

(12) On the Extreme Ultraviolet Spark Spectrum of Germanium and of Scandium.

By H. J. C. Ireton, M.A.

Results of determinations of the wavelengths in the spectrum of Germanium and Scandium in the region between λ = 2200 Å have been obtained. The spectrograms were taken with a quartz and a vacuum grating spectrograph.

(13) On the Infra Red Spectrum of Silicon and Titanium.

By Professor J. C. McLennan, F.R.S., and W. W. Shaver, Ph.D.

The infra-red spectra of Silicon and Titanium are being studied in this investigation. These spectra have not been investigated hitherto. It is expected that results will be obtained in support of ideas recently put forward regarding the series spectra and regarding the structure of the atoms of these elements.

B. Researches by and under the direction of Professor E. F. Burton, Ph.D., F.R.S.C.

Professor E. F. Burton has been carrying on, in conjunction with Mr. J. E. Currie, M.A., researches on the properties of colloidal solutions. These are of a technical nature and have to deal chiefly with the determinations of the size of charge on the particles in suspension in colloidal solutions and the demonstration of the existence of mutual repulsion between such particles. These mutual forces have an important bearing on the distribution of the particles in solutions and consequently on the concentration of such solutions.

One experimental paper has been published this year on the distribution of colloidal particles, and a second is now in course of preparation for the British Association Meeting on an experimental demonstration of the existence of mutual repulsion of these particles.

C. Researches by Professor John Satterly, D.Sc.

Work is being continued on the Viscosity of Air by the Capillary tube method from flows at low pressure to flows at pressures beyond those at which the stream line motion breaks down. A study is being made of the relationship between the point at which the stream line motion breaks down and the temperature of the gas.

D. Researches by Professor L. Gilchrist, Ph.D.

(1) Tidal currents in the Straits of Belle Isle and the Gulf of St. Lawrence.
(2) The electrical conductivity of transparent insulation.
(3) Electrical Stimulation of Muscles and Nerves. Professor L. Gilchrist in collaboration with Professor J. M. D. Olmsted and Mr. A. H. Gee.

E. Researches by Professor H. A. McTaggart, Ph.D.

The work on the electric charge on small bubbles in dilute aqueous solutions is being continued, special attention being paid to the electrical properties of the bubbles as they are absorbed by the liquid. A minute trace of oil on a bubble in pure water is found to be separated into a number of colloidal particles having a Brownian movement.

F. Research by A. G. Shenstone, Ph.D.

Work of last year on critical potentials in copper, silver and gold vapours had been extended spectroscopically. A verification or otherwise of the calculated principal series of these elements is being attempted.

Physiology, under Direction of Professor J. J. R. Macleod

Most of the investigations in this department have been concerned with the problem of the physiological mechanism involved in the action of insulin. It has been established by previous work that it is particularly in the muscles that sugar disappears as a result of insulin, its reduction in the blood being secondary to the lowering of the sugar tension in the muscles. It has also been shown that this disappearance is dependent neither on increased combustion of glucose by the muscular tissue nor on glycogen formation. It is therefore postulated that the sugar becomes converted into some non-carbohydrate substance and during the present year much attention has been given to finding what this substance may be. Attempts to extract it from tissue frozen by liquid air, and by alcohol, at temperatures below the freezing-point of water, have yielded results that seem to indicate that insulin produces some easily destructible substance having reducing properties and work is in progress at present to determine whether the formation of such a substance accounts for the disappearance of the sugar.

Dr. Frank N. Allan has been able to determine the exact relationship between the dosage of insulin and its effect on the excess of sugar excreted by diabetic animals. He has shown that with small doses of insulin the relative effect per unit is very much greater than with large doses. This fact is not only of theoretical interest but of high practical value since it indicates that in the treatment of diabetes the use of small quantities of insulin may often be of decided value, thus encouraging attempts to give this extract by other methods than that of subcutaneous injection, and also because it demonstrates that the glucose equivalents of insulin cannot be determined on patients unless the total carbohydrate metabolism is known. Dr. Allan, working with Capt. Sokhey, a Rockefeller Foundation Fellow, has also demonstrated in great detail the effect of insulin on the excretion of phosphoric acid in diabetic animals. They have demonstrated that this material disappears from the urine at the stage in insulin action during which the blood sugar is falling but that later there is a great increase in phosphoric acid. The importance of this observation is that' it indicates a close relationship of the intermediary metabolism of sugar in animals and the breakdown of sugar that occurs during alcoholic fermentation by yeast.

N. A. McCormick, E. C. Noble and Miss M. K. O'Brien have been working on various problems relating to the effect of insulin on glycogen deposition in the animal body and, besides confirming their previous conclusions, have shown that insulin is capable of preventing a breakdown of glycogen due to an excessive amount of adrenalin in the organism. Mr. Noble and Mr. McCormick have also investigated the possibility that insulin could be prepared for clinical use on a large scale from the so-called principal islets of bony fishes. Their work was done largely at the fishing grounds and at the Biological Station at St. Andrews, N.B., and they have worked out in detail methods by which satisfactory yields can be obtained from such fishes as the Cod and Pollock. They have finally concluded that, in maritime countries at least, such fish should be a profitable source of insulin. Their work in this direction has been continued by the Fisheries Board in England with substantially the same results.

Dr. Markowitz has been engaged in the general problem as to whether sugar may be derived from the animal body from fat and also on the supposed effect of insulin on the decolourisation of methylen blue of washed animal tissue. In connection with this latter work he has shown that these test tube methods in which methylen blue is used cannot satisfactorily be adapted for the assay of insulin.

Professor Olmsted, with Mr. A. C. Taylor, has continued the investigation started by Olmsted and Logan concerning the cause for the convulsive symptoms which are a feature of the action of insulin and also the behaviour of oxygen exchange and of the water balance of the body following insulin. The results have been published in several papers and have been a valuable contribution to the subject.

Dr. M. J. Wilson, working in collaboration with Dr. Dickson of the Röntgenological Department of the Toronto General Hospital, has carried out some very thorough observations on the movements of the stomach as affected by various physiological conditions. These movements were studied by means of X-rays and it was found that any condition which brings about a change in the tension of the CO_2 in the arterial blood has a marked influence on them. Insulin greatly excites them. The importance of Dickson and Wilson's work is that it provides accurate information concerning the possible influence of such substances, as sodium bicarbonate, as are used in clinical practice. Dr. Wilson has also been engaged in investigations on the gastro-intestinal tract, but the results are not yet ready for publication.

Psychology, under Direction of Professor G. S. Brett

The research work has been arranged and conducted by Professor E. A. Bott, assisted by Mr. S. N. F. Chant and Miss D. D. Hearn of the department staff.

I. *Reciprocal muscle action*—Prof. Bott and Misses Hearn and Hilliard. The characteristics previously reported (*Brit. Journ. of Psych.*, July, 1923) of wrist movement have been investigated this year in strokes with different amplitudes and different loads, and are found to hold true of all such conditions. These uniform features of voluntary reciprocal muscle action are a resultant of contributing antagonistic muscle groups, whose particular action requires further study.

II. *Auditory phase differentiation*—Prof. Bott and Messrs. Chant and Roderick. The effect upon auditory phase differentiation when the stimulus to one ear was altered in multiple phase or fractions thereof was investigated. The results, although not yet conclusive, indicate (*a*) a uniform displacement of the central range to the side of the stimulus in multiple phase, and (*b*) the presence of more than one nodal centre when fractional phases are used.

III. *Stereoscopy of still and motion pictures*—Prof. Bott and Messrs. Chant and Couch. Three methods for viewing projected stereoscopic pictures in full relief have been perfected. The phenomena pertaining to binocular fusion which these methods make available have presented new and significant problems in visual science. Certain of these problems are now under investigation in the laboratory.

IV. *The predictive value of academic marks in medical subjects*—Prof. Bott and Miss Hearn. This statistical study, which covers the continuous college record of two student generations in the Faculty of Medicine, has been completed and is being published. The findings indicate the extent to which a student's class standing in the early years of his course can be depended upon as indicating the class standing he will attain in the senior years of his course. These data are essential as a safeguard in using academic marks as a check upon the validity of intelligence test scores.

Zymology, under Direction of Professor H. B. Speakman

During the past year two research assistants and one Fourth Year student have been engaged in research work in the Department.

The laboratories are now adequately equipped for the study of the morphology and physiology of micro-organisms, and we are endeavouring to follow lines of investigation which are of general importance in connection with the physiology of protein and carbohydrate metabolism. The following problems have been studied this year:

"Bacteriological decomposition products of Amino Acids."
"The Fermentation of Compounds containing Three Carbon Atoms."
H. B. Speakman, I. Sitzer.
"The Influence of Organic Acids on the Fermentation of Sugars by B. granulobacter pectinovorum."
A. M. Wynne.
"The Effects of Neutral Salts on the Yeast Fermentation."
A. H. Gee.

Report of the Committee of Experimental Research in Medicine—Dr. D. E. Robertson, Secretary

The following researches were carried on during the year in the laboratory of the Committee of Experimental Research:

Mr. Hunter: Experiments on Creatinin in Muscle.
Dr. Shouldice: Abdominal Distention.
Drs. Gallie and LeMesurier: Experiments in Fascia.
Dr. Kenneth McKenzie: Experiments in the Gall Bladder.
Dr. Shier: Experiments in the Production of Thrombosis.
Dr. Wookey: Experiments in the Blood Supply of the Stomach.
Dr. Costain: The Drainage of the Thoracic Duct.
Dr. R. I. Harris: Study in Healing of Fractures.

Annual Report by the Chairman of the Committee of Management, School of Engineering Research

The School of Engineering Research has made very encouraging growth during the past year. Progress reports recently received from those members of the staff who have been directing, or themselves carrying on investigation work, indicate that a large proportion of the researches undertaken in the School have been brought to a successful conclusion. Bulletin No. 4, now in the press, contains the results of twelve researches in four departments of the Faculty. Other work, also completed, is now being arranged for publication in Bulletin No. 5, which, it is hoped, will be ready for distribution before the opening of the session in September.

The constant demand for sections reprinted from Bulletins 1, 2 and 3, by specialists in various branches of engineering in widely scattered parts of the world, as well as the expressions of appreciation received from those to whom the Bulletins have been sent, attest the high quality and usefulness of the research work carried on under the auspices of the School.

The business organisation by which the School operates through a Committee of Management drawn from every department in the Faculty is working so admirably that it merits special remark. The responsibility for the decision as to what researches shall be undertaken, and what moneys set apart for carrying them on, falls directly upon those who are in the best position to form a reasoned opinion on these questions. Members of the staff on any one engineering department not only have an intimate knowledge of the research problems suggested in their own departments, but also are able to form valuable opinions regarding the feasibility of the researches proposed to the Committee by other departments, and regarding the funds which might justifiably be expended upon each of them. Thus such a committee is in a position to stimulate activity in research in all departments, keep in touch with the researches throughout the year by means of progress reports, and at the same time furnish very valuable checks on individual and departmental research expenditures.

Department of Civil Engineering

Under the direction of Professor Gillespie:

The Use of Gunite as a Protection for Steel Structures—by P. Gillespie and P. J. Culliton. The steel girders at Leaside, Ontario, which were covered with gunite in November, 1922, have been under observation now for almost 18 months. Recent examination has disclosed certain facts respecting the covering material not heretofore observed. The report, which is in part Mr. Culliton's thesis with modifications, is practically complete.

A Study of the Design of Reservoir Walls—by P. Gillespie and W. B. Dunbar. The computations and drawings for this work have been completed by Mr. Dunbar. The manuscript is now under preparation.

Steel I-Beams Haunched in Concrete—by P. Gillespie and R. C. Leslie. The experimental work as planned last September has been completed, and the tables of safe load compiled by Mr. Leslie and subsequently checked by Mr. Rose are also finished. The text is now being prepared.

Under the direction of Professor Young:

The study of the torsional tests on I-sections previously reported has been completed and a paper is ready for publication. This will contain a needed working formula for the design of these sections of torsion.

A careful analysis of a series of tests on the tensile strength of drilled plates is being made. Modification of the current rules for calculation of the net section of such members will be recommended and a series of new diagrams for the use of the designer have already been prepared.

Experimental investigation of the stresses in square pyramidal transmission line towers has been made during the past year with the aid of Mr. C. E. Lewis, research assistant. The effect of torsional loads on the bracing in the cross arm and on the tower generally has been particularly studied with useful results.

Under the direction of Professor Stewart:

Some useful forms for the azimuth formula.—This contains the derivation and discussion of a formula suitable for the reduction of the most precise observations without the use of special tables, and, in a simpler form, also for the observations of the engineer in his ordinary practice; another simple form is also derived and discussed, suitable for the use of the engineer.

The adjustment and computation of the Gull Lake triangulation.—As stated this work comprises the complete adjustment of the observed angles of the trangulation so that they will comply with all possible geometrical conditions, the solution of the triangles, and the computation of the geodetic latitudes, longitudes and azimuths of the stations.

Another piece of work which is in progress is the discussion of a series of latitude observations extending over about a year and a half. The object of this is to determine the latitude of a point as accurately as possible, and also, it is believed, to investigate the effect of atmospheric conditions on such observations, and other related matters.

Under the direction of Professor Anderson, in conjunction with Mr. K. B. Jackson:

An investigation is now under way upon projection reflectors with a view to the improvement of headlight illumination, based on a study of various factors concerned.

Under the direction of Professor T. R. Loudon:

A research has been carried on this year on photo elasticity in connection with the two following subjects:

Net section of riveted tension members.

Effect of keyway on gears.

The paper is now ready for publication on the first-mentioned subject.

Department of Mining Engineering

(1) High speed photography of rock crushing in rolls, by H. E. T. Haultain and F. C. Dyer.

About 800 ft. of film was exposed on this work at 125 exposures per second, resulting in beautiful slow motion pictures of a variety of rocks and ores actually being crushed in rolls.

(2) Analysis of ball paths in tube mills by means of high speed photography, by H. E. T. Haultain and F. C. Dyer.

In continuation of previous work 400 ft. of film was exposed on this at 100 exposures per second. This showed the effect on the ball paths of the presence of hard, gritty quartz.

The films of Nos. 1 and 2, together with the films of previous work on ball paths, were shown at the Summer Meeting of the American Institute of Mining and Metallurgical Engineers in Montreal last August, and received such a welcome that the A.I.M.M.E. asked that they be shown at their Annual Meeting in New York last February and have now sent the films on a tour of all their branches throughout the United States. The mechanism of the high speed camera that did this work has now been modified and is capable of 200 exposures per second and further work along the lines of 1 and 2 will be continued this summer.

(3) A study of the crushing of rock in rolls with special reference to the Kick *vs.* Rittinger dispute, by H. E. T. Haultain assisted by J. G. McNiven.

The experimental work for this was done during the session 1922-23 and was worked into a paper during the summer which was presented at the Summer Meeting of the A.I.M.M.E. in Montreal in August, and, with some further additions, is ready for publication in our forthcoming Bulletin.

(4) A study of rock crushing in rolls with special reference to the energy required for different types of rocks, by H. E. T. Haultain assisted by H. F. Farncomb, Hollinger Research Fellow.

This is a continuation of No. 3. Quite unexpected and surprising results have been obtained in determining the actual energy required to crush rocks and ores of different textures.

(5) A study of rock crushing in ball and rod mills, by H. E. T. Haultain assisted by H. E. French, Research Assistant.

This is a continuation of work that has been going on for the past three years. On account of the large number of variables progress has been slow, but this session some definite useful information has been obtained and the way prepared for more rapid advance. When the technique has become more standardised it is expected that the rolls and dynamometer used in No. 3 and the small tube mill and dynamometer used in this work will enable us to make usefully accurate reports on the energy that will probably be required to crush and grind any rock in field apparatus.

(6) Refining of graphite in the finest sizes, by F. C. Dyer, assisted by J. G. McNiven.

This research is still in the preliminary stage developing means for the direct attack on the problem. The work has been directed towards the development and testing of means for measuring changes in surface tension resulting from minute additions of modifying agents.

(7) Cupellation Losses ,by J. T. King, assisted by R. J. Henry and C. H. E· Stewart.

The art of cupellation is an ancient one. The causes of losses have been studied by investigators from many angles; the problem is a difficult one due to the number and nature of variables involved. Means of isolating and controlling these variables have been studied by Professor King at intervals for the past 10 years, and more intensively during the past three years, resulting in a refinement of apparatus and technique not found recorded in the literature. Special attention has been given during the present session to the effect of air supply, a most important and hitherto neglected phase, and this is now being prepared for publication.

(8) Growing out of this, work is now being continued with the following phases:
  (*a*) The effect of temperature.
  (*b*) The effect of relative amounts of silver, gold and lead.
  (*c*) The relative effects of absorption and volatilisation.
  (*d*) In bone ash cupels the effect of grain size, proportion of grain sizes, pressure, moisture, shape of cup.
  (*e*) A comparative study of cupellation losses in bone ash, cement, magnesite and other commercial cupels.

Department of Mechanical Engineering

The first five of the following researches have been conducted by Professor Angus and Mr. MacAllister, assisted by the staff of the Department.

(1) Heat transfer through building walls and heat insulating materials, such as pipe coverings:

The research along the above lines is a continuation of that begun a good many years ago, principally on the heat transfer through walls of buildings. Walls of various materials, such as brick, concrete blocks, hollow tile with and without plaster and outside coating, have been tried, also various other constructions, and during the year farther progress has been made, more especially with building tile and pipe coverings.

(2) Investigation of the rate of percolation of water through various soils, with special reference to their adaptability for dams:

Progress has been made with various soils and a report will be ready shortly.

(3) Investigation on the effect of an obstruction in the entrance end of a Venturi meter tube completed.

(4) Flow of water over dams:

An investigation is under way on the flow of water over dams, for the purpose of designing the dam, and determining the conditions of flow down its face.

This study has just begun and appears to be working out with considerable satisfaction. It is hoped that a paper may shortly be presented on this subject.

(5) Investigation of Water Turbines and Draft Tubes:

Considerable work has already been done in this research which had to be discontinued during the session. Further work will begin early in April.

Under the direction of Professor Parkin:

Bulletin No. 4 of the School of Engineering Research will contain the following Aeronautical Research Papers, giving the results of aerodynamic research work completed up to the time of dismantling of the original wind channel.

No. 8. Thick Tapered Aerofoils.
J. H. Parkin, H. C. Crane, J. S. E. MacAllister, and E. V. Ahara.
No. 10. Downwash.
J. H. Parkin, H. C. Crane, and J. S. E. MacAllister.
No. 11. Centre of Pressure Determination in Wind Channel Experiments.
J. H. Parkin and H. C. Crane.
No. 12. Grooved Aerofoil.
J. H. Parkin, H. C. Crane and J. S. E. MacAllister.
No. 13. Investigation into the Effect of Certain Variations in the Leading Portion of an Aerofoil.
J. H. Parkin, H. C. Crane and J. S. E. MacAllister.
No. 15. End Spindle Corrections in Wind Channel Experiments.
J. H. Parkin, H. C. Crane, J. S. E. MacAllister and E. V. Ahara.

Particular attention is drawn to Paper No. 10 on Downwash. This paper presents the results of a very extensive study of the air flow in the rear of aerofoils. A formula is derived enabling the inclination of the air stream at *any point* in the rear of a wing of *any shape* to be calculated. Authorities state the study to be most comprehensive and unique.

Following the completion of the new building to house the wind channel and the installation of the remodelled channel much time was occupied in recalibrating apparatus and adjusting and tuning up the channel.

At the present time an exhaustive study is being made of the channel, including velocity traverses of channel and building, power studies and investigations of the effect of:

(1) Doping the expanding cone.
(2) Addition of the honey comb.
(3) Metal lining of the expanding cone.
(4) Addition of a cellular wall.

Under the direction of Professor Allcut:
Gas Producer Research—

A number of experiments have been made on an experimental downdraught gas producer, varying (*a*) the volume of air, (*b*) the weight of water supplied to the producer per minute. The results obtained were somewhat irregular and the gas generally of low calorific value. It is proposed to investigate the effect of other variables on this plant. Two experiments were made with peat charcoal which gave good results.

Department of Architecture

Under the direction of Professor Madill:
(with K. F. Noxon, Research Assistant).

A complete history of the Italian Renaissance in Architecture has been prepared, embracing the following:

A history describing the whole movement and the influences which governed its course.

Complete card index of the buildings of the period.

Chronological list of the buildings, maps with the buildings plotted on them, drawings and photographs.

A portion of the text will be published in Bulletin 5, embracing a history of the Renaissance of Architecture in Florence, which will be illustrated with photographs and drawings.

Department of Chemical Engineering

Under the direction of Professor Bain:
(with G. F. Kay, Research Assistant).

The Effect of Heat on Cellulose and Starch has been progressing slowly owing to the difficulties which have been encountered. However, discoveries have been made and we are at present occupied in investigating several substances which have been prepared by novel methods, and are possibly hitherto undescribed.

Under the direction of Professor Ardagh:
An investigation of the Discoloration in Corn Oil Soap and the Possibility of Preventing its Development:
(with J. C. Bell, F. S. Spence and A. Murray)
published in *Canadian Chemistry and Metallurgy*.

The surface discoloration appearing on soap made from stock containing corn oil was shown to be due entirely to oxidation of the unsaturated fatty acids present as glycerides in the corn oil. By heating the oil in an inert atmosphere to 280° C. the extent of the unsaturation can be reduced to such an extent that soap made from the resulting oil will stand up well on exposure to air.

A study of the distillation of calcium acetate for the purpose of increasing the yield of acetone (with G. E. McClellan) is now being made.

Under the direction of Professor Boswell:
The Mechanism of Catalysis by Platinum:
(with R. R. McLaughlin).

A quantitative study of several gas reactions taking place in the presence of platinum black has led to a new conception of the method by which platinum acts as a catalyser.

Published in the *Transactions of the Royal Society*, also in *Bulletin No. 4, School of Engineering Research.*

The Inhibition of the Normal Behaviour of Platinum Catalyst by Chlorine:
(with C. H. Bayley).

The nature of this so-called "poisoning" of platinum black has been shown to be due to the destruction of the surface film of dissociated water on the normal platinum catalyst and the prevention of its subsequent formation. As this film is the seat of the catalysis the normal catalytic action is thus prevented.

The Activity of Partially Reduced Nickel Sulphide, Calcium Nitrite and Ferric Chloride as Catalysts:
(with R. C. Veals).

The complexes formed by the partial reduction of these compounds have been found to be active as catalysts in certain reactions. These observations fit in with the general theory of catalysis developed by the author in former papers.

The Mechanism of Catalysis by Aluminium Oxide:
(with H. M. Dilworth).

The secondary reactions involved in the formation of ethylene from ethyl alcohol by aluminium oxide have been determined. These observations, taken along with the general behaviour of this catalyst, have enabled some conclusions to be drawn regarding the mechanism of catalysis.

On the Constitution of Rubber:
(with B. Shaffer).

A further study of rubber reactions has been carried out, confirming the constitutional formula for rubber devised in this laboratory and already published in the *Transactions of the Royal Society*.

On the Mechanism of Vulcanisation of Rubber:
(with B. Shaffer).

Some new sulphur, and sulphur and iodine, and sulphur and chlorine derivatives of rubber have been made, which give additional confirmation of the above-mentioned constitutional formula for rubber, and also indicate the nature of the reactions involved in rubber vulcanisation. This work is in progress.

On the Mechanism of the Action of Accelerators in the Vulcanisation of Rubber:
(with C. H. Bayley).

Some new reaction products of accelerator and isoprene, and accelerator with rubber are being studied with a view to arriving at the nature of the reaction involved in the vulcanisation of rubber in the presence of accelerators.

On the Mechanism of the Action of Dimethylaniline, Aluminium Chloride and Oxygen:
(with D. D. Mossman).

This reaction leads to the confirmation of a dye of new constitution. Several intermediate products in the formation of the dye have been isolated, indicating the several steps involved in its formation, and also throwing considerable light on the constitution of the dye itself.

The Synthesis of Rubber:
(with E. Littlejohn).

Isoprene was synthesized by known methods, and a study made of its depolymerisation along with dipentene. This work is still in progress.

Department of Electrical Engineering

Under the direction of Professor Rosebrugh:

Research on Coil Aerials:

The purpose of this investigation was the improvement of wireless receiving aerials of the coil or loop type with a view to increasing, if possible, the amount of signal energy receivable by a loop aerial of given overall dimensions. The results to date show that by relatively simple modifications the energy available from a loop of given physical dimensions can probably be increased by about 100 per cent. It has also been found that the laboratory method of measurements used by other experimenters does not give results in agreement with a more direct method which is at present being employed in this laboratory. This disagreement of results is now under investigation.

Under the direction of Professor Price:

Frequency Control Research:

(with G. F. Tracy, Research Assistant).

An apparatus has been devised, the principles of which, and main parts of the apparatus can be adapted to hold constant the frequency of two or more generating plants connected to the same electrical supply system, and at the same time not disturb the regulation of turbine governors set to secure proper division of plant load between the several generating plants, and between the individual units in each plant. This apparatus will be in use on the service motor-generator sets in the IV Year Electrical Laboratory.

Department of Metallurgical Engineering

Under the direction of Professor Ellis:

Influence of Constitutional Changes on the Plastic Deformation of Steels.

One portion of this research has now been completed and has been forwarded to the Iron and Steel Institute for publication. The same is to be published some time later this year in a volume of their Carnegie Scholarship Memoirs.

Influence of the Temperature of Pouring and Rate of Cooling on the Physical Properties of Lead Base Bearing Metal.

A research into this subject has been made and results are to be forwarded to the American Institute of Mining and Metallurgical Engineers for the consideration of their Publication Committee and possible publication later this year.

The Quenching Power of Various Liquid Media.

This research has been completed and it is hoped to publish the same at the autumn meeting of the American Society for Steel Treating.

The following researches are in progress:

Influence of Constitutional Changes on the Plastic Deformation of Steels.

This research is being continued at higher temperatures and a further report will be forwarded to the Iron and Steel Institute in due course.

An Investigation Into Certain Chromium Molybdenum Steels.

Work has recently been commenced on a series of chromium molybdenum steels, the physical characteristics of which are being carefully examined.

Heat Treatment of Brass.

An attempt to determine the limits of the Alpha solid solution of the zinc-copper alloys is being made.

Department of Dental Research—A. E. Webster, D.D.S., M.D., Secretary

During the past year of 1923 the work done in the Department of Dental Research has, in brief, included:

1. A continuation of the work on Dental fillings. It was felt that sufficient had been done in the particular manner to publish a report. In July this report was completed and sent for publication to the *Journal of Dental Research*.
2. The research on Streptococcus viridans is being still continued. A preliminary report on the earlier part of this work was, however, sent to the *British Dental Journal* in September.
3. Specimens such as extracted teeth, vital pulps and root canal dressings have been received for culture from dentists in private practice.
4. All the outstanding articles, published during the year 1923, on root canal technique, have been reviewed and extracts prepared ready for publication.

It is hoped that in this manner we may be able to present to the dentists the means of acquiring at least a brief idea of the many methods and practices used in this most important field of Dentistry.

5. A table has been prepared from reliable authorities of the mineral percentage (Calcium, Iron and Phosphorus) and vitamin content of our most important goods. It is intended to publish this in a convenient form for the dentist to use as a handy reference.

(9) PUBLICATIONS

FACULTY OF ARTS

DEPARTMENT OF ASTRONOMY

Chant, C. A.—*The Audibility of the Aurora.* (Journal of the Royal Astronomical Society of Canada, Vol. 17, page 273, 1923.)

The Shadow Bands at the Australian Eclipse. In collaboration with Jean L. Chant. (Journal of the Royal Astronomical Society of Canada, Vol. 17, page 379, 1923.)

Evidence Regarding the Bending of the Rays of Light on Passing the Sun Obtained by the Canadian Expedition to Observe the Australian Eclipse. In collaboration with R. K. Young. (Publications of the Dominion Astrophysical Observatory.)

DEPARTMENT OF BIOLOGY

Adamstone, F. B.—*The Bottom Fauna of Lake Nipigon.* (University Studies, Fisheries Research Series, No. 19.)

Bensley, B. A.—*A Plan for the Biological Investigation of the Water Areas of Ontario.* (University Studies, Fisheries Research Series, No. 1.)

Bigelow, N. K.—*Further Studies of the Plankton of Lake Nipigon.* (University Studies, Fisheries Research Series, No. 20.)

The Food of Young Common Suckers in Lake Nipigon. (University Studies, Fisheries Research Series, No. 21.)

Clemens, W. A.—*The Limnology of Lake Nipigon in 1922.* (University Studies, Fisheries Research Series, No. 17.)

The Economic Importance of Insects as Food for the Common Whitefish. (Annual Report Ent. Soc. Ont. 1922.)

Clemens, W. A. and Leonard, A. K.—*On Two Species of Mayflies of the Genus Heptogenia.* (Canadian Entomologist, Jan., 1924.)

Ford, Miss N.—*A Comparative Study of the Abdominal Musculature of Orthopteroid Insects.* (Trans. Royal Can. Inst. Vol. XIV, pp. 207-319, pl. VII-XXIII.)

Harkness, W. J. K.—*The Rate of Growth and the Food of the Lake Sturgeon.* (University Studies, Fisheries Research Series, No. 18.)

Huntsman, A. G.—*Natural Lobster Breeding.* (Bull. Biol. Board of Canada, No. 5, July, 1923.)

The Influence of Tidal Oscillations on Vertical Circulation in Estuaries. (Trans. Royal Soc. Can., Vol. XVII, Sect. V, October, 1923.)

The Importance of Tidal and Other Oscillations in Oceanic Circulation. (Trans. Royal Soc. Can., Vol. XVII, Sect. V, October, 1923.)

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Present Day Evolution of Man. (University of Toronto Medical Journal I, 13-18, February, 1924.)

Department of Botany

Faull, J. H.—"*Sapin Rouge,*" *or the Red Heart Rot of Balsam, its Cause and its Relation to Slash Disposal.* (Report of the Department of Lands and Forests, Ontario, 1923.)

Types of Defective Balsam and Spruce Pulpwood in Relation to the Problem of Utilization. (Report of the Department of Lands and Forests, Ontario, 1923.)

Hyalopsora Fern Rust of Balsam. (Report of the Department of Lands and Forests, Ontario, 1923.)

The Treatment of Decayed Wood in and Outside the Mill. (Canadian Pulp and Paper Magazine, Feb. 28, 1924.)

Bell, Hugh P.—*Fern Rusts of Abies.* Plates I-V and 10 text figures. (Botanical Gazette, Vol. LXXVII, 1924.)

Fritz, Clara W.—*Cultural Criteria for the Distinction of Wood-Destroying Fungi.* Plates I-XII. (Trans. Roy. Soc. Can. Vol. XVII, Sec. V, pp. 191-288, 1923-24.)

Department of Chemistry

Allan F. B.—*The Reaction of Acenaphthene with Phthalic Anhydride and Aluminium Chloride.* In collaboration with Lorriman, F. (Trans. Roy. Soc. Can. p. 270, 1922.)

Some Preparation from Maleic and Fumaric Acids. In collaboration with Oddy, H. (Trans. Roy. Soc. Can. p. 270, 1922; p. 160, 1923; Jour. Am. Chem. Soc. *45*, 21, 56, 1923.)

Burt-Gerrans, J. T.—*The Electrode position of Copper and of Nickel on Aluminium.* In collaboration with Everest, T. E. (Trans. Roy. Soc. Can. p. 274, 1922.)

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The Diffusion of Hydrogen and of Helium through Silica Glass. In collaboration with Williams, G. A. (Trans. Roy. Soc. Can. p. 272, 1922.)

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Miller W. Lash.—*Wildiers' Bios.* (Science XX, 59, p. 197, 1924.)

The Influence of Certain Chemicals on the Rate of Reproduction in Yeast in Wort. In collaboration with Clark, N. H. (Jour. Phys. Chem. 28, p. 221, 1924.)

The Natural Distribution of Bios I and Bios II. In collaboration with Eastcott, Miss E. V. (Trans. Roy. Soc. Can. p. 157, 1923.)

The Electrolysis of Aqueous Solutions of Sodium Sulphide. In collaboration with Fetzer, W. R. (Trans. Roy. Soc. Can. p. 266, 1922.)

Multiple Electrode Systems, and Throw in Electroplating Baths. In collaboration with Heatley, A. H. (Trans. Roy. Soc. Can. p. 164 1923; Trans. Am. Electrochem. Soc. 44, 283, 1923.)

The Influence of Methyl-green on the Rate of Reproduction of Yeast in Wort, and Some Experiments on the Fermentative Power of Yeast. In collaboration with Leaf, W. B. (Trans. Roy. Soc. Can. p. 159, 1923.)

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DEPARTMENT OF GERMAN

Fairley, B.—*The Modern Consciousness in English Literature.* (Essays and Studies, Vol. 9. Clarendon Press, Oxford, 1924.)

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DEPARTMENT OF ANCIENT HISTORY

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DEPARTMENT OF MODERN HISTORY

Flenley, R.—*Life of Samuel Champlain, Founder of New France.*

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(10) REPORT OF THE LIBRARIAN

(*W. S. Wallace, Esq., M.A.*)

I beg to submit the following report on the work of the University Library for the year ending June 30, 1924.

The number of volumes added to the Library during the year has been 9,351, and the number of pamphlets 2,174, making a total of 176,777 bound volumes and 65,501 pamphlets.

A notable feature of the year's accessions has been the number of periodicals added to our shelves. It may be of interest to know that the University Library now receives, by purchase, exchange, or gift, a total of 1,884 serials and periodicals of all kinds. Together with the library of the Canadian Institute, which has been deposited with us, we now have without question the largest collection of scientific and foreign-language periodicals in Canada. With a view to making these more accessible, the Library is joining with other libraries in Toronto in bringing out this year a new edition of the *Joint Catalogue of Periodicals to be found in the various Libraries of Toronto*, last published in 1913.

The statistics of the use of the Library by undergraduates, in comparison with the two previous years, are as follows:

	1921-22	1922-23	1923-24
Number of day books	41,928	51,513	80,172
Number of books taken out for the night	18,998	20,508	31,314
Number of books taken out for the week	4,792	5,715	12,316
	65,718	77,736	123,802

These figures, showing as they do a phenomenal increase in the use of the Library during the past year, an increase of approximately sixty per cent., on top of an increase for 1922-23 of twenty per cent., illustrate the extent of the service which the Library is rendering to the University. Such a great increase in one year has naturally imposed on the reference department an unprecedented strain. So great has the pressure been that we have had to discontinue, to a large extent, the reference work begun two years ago, and the assistants in the department have been able to meet the demands upon them only by exceptional efforts. Under these circumstances, I have been compelled to ask for an addition to the staff of this department next year.

The explanation of this great increase is probably to be found in several factors. In the first place, the opening of the new reserved-book reading-room, in history, geography, and political science, beneath the men's reading-room, has added greatly to the capacity of the Library, while it has at the same time relieved the congestion at the main delivery desk. In the second place, permission was kindly given to the Librarian by the deans of the faculties of Arts, Medicine and Applied Science to bring the advantages of the Library to the attention of the undergraduates of the first year in these faculties. This has resulted in a larger use of the Library by a class of undergraduate who has, in the past, sometimes taken some time to find out where the University Library was. Lastly, there seems to be no doubt that the undergraduates, as a whole, have applied themselves to their books during this past year with much greater assiduity than at any time since before the war.

The figures given above do not, it must be understood, include books borrowed by members of the University staff or by graduates. Statistics regarding these books are almost impossible to obtain, since there is placed on the loan of them no time limit; but it is significant that there has been an increase in the number of professors and of graduates who have availed themselves of the privileges of the Library. Whereas last year there were 497 names in the graduates' register, there are now 607; and whereas there were last year 390 names in the professors' register, there are now 409.

During the year there arose in regard to Library binding a situation which can only be described as an emergency. Owing to the very greatly increased cost of binding since the war, and the unprecedented wear and tear on books caused by the increased use of the Library, the arrears of binding mounted until they were twice what they were the year before, and four or five times what they would have been under normal circumstances. At the same time, the appropriation for binding was exhausted early in the new year, despite the fact that widespread changes have been introduced into the binding specifications, with a view to placing in cheaper binding those books which are not likely to have heavy use. Under these circumstances, the Board of Governors came to the relief of the Library with an additional grant for binding, and this has enabled us to meet the situation after a fashion for the time being. I know of no way, however, in which the situation can be met permanently save by a frank recognition of the facts, and the diversion to binding of a greater share of the Library revenues than has been allocated for that purpose in the past.

The increase in the cost of binding has been to some extent paralleled by an increase in the cost of books. This has been especially noticeable in the case of German scientific periodicals, to a great many of which the Library subscribes. In some cases these periodicals now cost several times what they cost a few years ago; and yet it seems impossible to cut many of them off without detriment to the work of the University. To this cause in part I attribute the fact that most of the departmental appropriations in the Library funds were exhausted by the end of February. In this connection there occurred an amusing incident. A professor, who was notified that the Library appropriation for his subject was exhausted, came into the Library and remonstrated, saying that there must be some mistake, since he did not remember having recommended any books for purchase at all. Reference was immediately had to the Appropriations Book, and it was there found that the professor's memory was quite accurate. He had not asked for the purchase of a single book up to that time—but practically the whole of the appropriation for his subject had been exhausted in paying for periodicals and continuations. This incident illustrates forcibly the fact that in many of the departments the book funds of the Library are no longer adequate to keep up with the requirements of the professors, to say nothing of the requirements of graduate students.

Finally, I wish to bring to your attention once more the faithful and effective service of the assistants in the Library, both heads of departments and those in junior capacities, and to express the hope that it will be found possible before long to give to certain of the members of the Library staff an academic status, carrying with it academic salaries and pensions. The fact that the Library is classed as an administrative department in the University sometimes obscures the fact that the work of the Library is educational in a very high degree.

All of which is respectfully submitted.

(11) REPORT OF THE DIRECTOR OF THE DEPARTMENT OF SOCIAL SERVICE

(*Professor J. A. Dale, M.A.*)

The outstanding feature of the past session was the elimination of the one-year course. In previous years I have pointed out that steps were being taken towards this necessary advance, and the increased thoroughness of training it would make possible. This milestone in the growth of the Department is now happily passed. We are now able to make a better distribution of work between the years, the full benefit of which will be apparent next session.

Real progress has been made in the consolidation of field work, with the active co-operation of 11 social agencies and 29 supervisors, whose work, though voluntary, is a vital part of the training course. It is with an increasing sense of the value of their help that I have to record each year our gratitude for so much skilled and devoted oversight of the students' practical experience. I expect to have to record next year some further improvements in the development of our field work. Meantime, Miss McGregor, in consultation with the supervisors, is giving much time to the assignment of practice, and the rating of the degree of success and promise shown by students.

Through its staff and its graduates the Department is in close and sympathetic touch with the social agencies, and is devising means of reaching the best possible kind of student. Under the same head may be mentioned the address of Dr. Devine, always a welcome visitor. In addition to a large number of addresses in the city, the Director has also visited Montreal twice, Ottawa twice, Hamilton, Buffalo, Niagara Falls, Trenton, Barrie, Windsor and other places. Lecture courses have also been given at Ottawa, and at the Canadian School of Missions.

There is only one matter I mention with regret—the need of money for books. We have a good library of 2,000 books, and increasing use is made of it. By the use of binders, Miss Anderson has this year brought into greater use a large number of valuable pamphlets. But we are beginning to fall behind in our supply of new books, and unless means are quickly found of overcoming this handicap we are facing a serious situation. We do not need a large amount to keep abreast of our literature, but a small fund is absolutely necessary.

To return to matters of encouragement, this session closes with the visit of the National Conference of Social Work, which will bring fellow-workers in this field from all over Canada and the United States to the University. This is the first time the Conference has come to Canada since 1897, and the preparations for its reception and programme have already produced a stimulating sense of solidarity over and above any gains of inspiration and shared experience the Conference itself is sure to bring.

(12) REPORT OF THE DIRECTOR OF PUBLIC HEALTH NURSING

(*Miss E. K. Russell, B.A.*)

The end of the Session 1923-24 presents the interesting fact that the demand for our graduates is greatly in excess of the supply. Fortunately that demand is turned directly upon our Department so that we are able to gauge both the quantity and the quality of the worker sought. Two facts present themselves: (1) that we should increase the number of our students, (2) that, in spite of the desire to increase the number, we must not lower our standards, for the very Health Departments that are urging us to supply more nurses are most critical about the quality of the worker that they need.

Many requests for nurses come to us from other Canadian Provinces and from the United States: we cannot accept the responsibility for meeting those needs, but we do accept a special responsibility for Ontario. Consequently, one feature of our year's work has been a special effort to study the needs of this Province and the possibilities for a larger supply of graduate nurses qualified to enter upon post-graduate training for public health work. To make this study visits have been paid to several of the hospital nursing schools of the Province. As the hospital training is a prerequisite for our course, we are entirely dependent upon the standards of those schools. We have found that the number of matriculants is very small, and although their entrance standard is slowly improving, nevertheless it will be several years before we can hope to have even a moderate supply of matriculants among those applying to us for training. If the hospital schools are to serve as preparatory schools for us, then the connection between those schools and our Department must be strengthened. At present, as far as the preparation of the public health nurse is concerned, we are two parts of one whole but two unrelated parts.

Our Extension work is growing. The refresher course for public health nurses initiated in June, 1923, is to be repeated, and, we hope, to be made an annual event. To meet the demands of the nurses themselves, the date for this work has been changed and the next course will be offered in January, 1925. Because of the intensive public health work that must be done during the summer months it is difficult for the nurses to obtain leave at that season. In February and March of this year, with the help of the Extension Department and the Faculty of Household Science, we offered a course of lectures in "Diet in Health and Disease." Eighty-seven enrolled for those lectures.

We note with keen regret the withdrawal of Miss K. S. Cowan from our staff. Miss Cowan has had the task of arranging facilities for practical teaching with the public health organization of Toronto. After three years of difficult pioneer work she leaves an excellent and abiding foundation upon which we may safely build. Miss Florence Emory, Supervisor of School Nursing in the Toronto Department of Public Health, is now joining our staff as Assistant Director.

During the past year scholarships were given by the Victorian Order of Nurses, the Toronto General Hospital, the Alumnae Association of the Nursing School of the Toronto General Hospital, the Toronto Western Hospital, St. Michael's Hospital, Toronto, the New Brunswick Department of Public Health, and the Rockefeller Foundation. Several of those donors have already announced their intention of repeating the scholarships for the coming year. In addition the Ontario Red Cross Society has decided to express its continued interest in this Department which it helped to create by establishing a permanent scholarship of the value of Three Hundred and Fifty Dollars to be offered annually, beginning in September of this year.

(13) REPORT OF THE DIRECTOR OF UNIVERSITY EXTENSION AND PUBLICITY

(*W. J. Dunlop, Esq., B.A.*)

More this year than ever before has the Department of University Extension been asked to serve the people of Ontario. Instruction has been arranged for 2,560 students. Of these 617 were teachers proceeding either to the B.A. degree or to a higher certificate, which will ultimately be of value toward the B.A. degree. In the Workers' Educational Association there were 987 working men and women studying in 33 evening classes in Toronto, Hamilton, Windsor, Ottawa, Kitchener, Brantford and Galt. In the Extension Course in Journalism there were 120 students; in the Course for Private Duty Nurses 340; in the Export Trade, 56; in the Course for Prospectors, 46; in the Summer Course in Dramatic Art, 24; in Dietetics for Nurses, 87. Urban Tutorial Classes were offered in Journalism, in English Literature, in Rhetoric, Italian for Vocalists, Sewing for Teachers, Household Science, and Psychology, and in these classes there was an enrolment of 333. Rural Tutorial Classes were conducted at Delhi, Elder's Mills, and Lefroy. The students in all these classes were adults, and it may be of interest to note that there were 917 men and 1,643 women. It has become the custom in Ontario for any organisation that wishes advanced instruction for its members to ask the University for assistance.

From the Department of University Extension many bulletins go out during the year to large mailing-lists and to any persons who may care to have them. Of these the first each year is the "Commencement" bulletin, which goes to every graduate of the University. This year a particularly attractive booklet containing in very brief compass a history of the University and an account of its administration, along with twenty-five illustrations of University buildings was prepared and distributed. This booklet is sent to anyone who writes for it. Two very attractive and beautifully illustrated pamphlets descriptive of the Royal Ontario Museum of Archaeology were also published.

During each year hundreds of inquiries are received regarding all sorts of matters. Teachers write for advice as to the best procedure for improving their academic standing; other people wish to know exactly how some word should be spelled; a woman wishes to know what is meant by a "well-developed mind"; a man wants to know who is the Viceroy of India; another man in a little village in Western Ontario has caught a curious turtle and he wishes to know the name of it as well as other particulars. These, with one accord, telephone or write to the Department of University Extension and it is part of the policy of this Department to do everything possible to secure and forward all such information and to do it promptly and cheerfully.

The University's exhibit at the Canadian National Exhibition was more popular in 1923 than ever before. Insulin, Biology, Astronomy, the Alumni Federation, and University Extension, also the Dominion Meteorological Bureau, occupied the space allotted to the Provincial University. By means of the distribution of a small folder it was ascertained that an average of more than 4,000 interested people visited the exhibit each day.

With the assistance of the Department of Photography and the Connaught Laboratories a University exhibit was prepared for the British Empire Exhibition. Eight other Canadian Universities joined with the University of Toronto in providing an exhibit which is interesting hundreds of people every day at Wembley. Those who examine this exhibit are impressed with the fact that, while Canada is rich in material resources, education has not been neglected.

Extension Lectures were given by members of the staff of the University in Agincourt, Baltimore, Barrie, Beaverton, Belleville, Bobcaygeon, Bowmanville, Bloomfield, Bolton, Bracebridge, Brampton, Brantford, Brighton, Chesley, Cobourg, Galt, Georgetown, Guelph, Hamilton, Hespeler, Kincardine, Kingston, Kitchener, London, Marmora, Milton, Meadowvale, Midland, Mount Dennis, Niagara Falls, Norwich, Norwood, Ottawa, Orillia, Owen Sound, Peterborough, Pickering, Port Colborne, Port Hope, Richmond Hill, Sudbury, St. Catharines, Thornhill, Toronto, Vineland Station, Welland, Wiarton, Woodbridge. The total number of lectures given was 188.

The telescope service has been continued and is very profitable to those who are interested in astronomy. Every clear Saturday evening nearly two hundred people make use of the two University telescopes to study the stars and planets.

A new departure, commenced in May, has been the Saturday afternoon Ramble Studies conducted for the Workers' Educational Association. From 50 to 150 working men and women have spent their Saturday afternoons studying under the direction of a University professor, biology, botany, birds, bees and geology in the open air and in the open spaces around Toronto. This has been a most successful enterprise and has added even more enthusiasm to the aggressive work being carried on by the W.E.A. To Mr. Alfred Macgowan, the Secretary-Treasurer, much credit is due for the unprecedented expansion of the Workers' Educational Association during this year.

The Department of University Extension has provided during this academic year some form of University service for approximately 12,000 people.

(14) REPORT OF THE DEPARTMENT OF MILITARY STUDIES

(*Colonel W. R. Lang*)

As requested, I have the honour to report as follows on this Department for the Session 1923-24.

1. The numbers of Honours and Pass students enrolled in the four courses named below were:

	Arts	Meds	App. Sc.	Total
Course 1. Juniors (II Year Arts)	39	..	..	39
" 2. Intermediates (III Year Arts)	30	..	..	30
" 3. Seniors (IV Year Arts)	7	2	1	10
" 4. Special Class (II, III and IV Years)	17	17	27	61
Totals	93	19	28	140

Course 4 is for students desiring the subject but who can only attend at 5 p.m.

In addition to the above total 113 took drill, musketry, physical training, and other practical instruction with the C.O.T.C.

2. All the 37 students were successful who sat the 1923 examinations conducted by the War Office for Imperial Certificates of Proficiency. This March 58 students passed the practical examination and sat the written examination for W.O. Certificates "A" and "B", but the results will not be known till Midsummer as the papers are read in England.

3. Only a small number of medical students took the course leading to qualification as an Army Medical Corps officer, but as the course for Certificate "A" forms part of this qualification, and has now been taken by many medical students, the number of candidates may be expected to increase each year.

4. The Department is in need of more lecture-room accommodation. Many students who began Course 4 withdrew after a few attendances owing to the discomfort. This seems a pity and a suggestion which would meet the situation is attached to this report, as also is one regarding the provision of accommodation for drill in the basement of some future University building.

5. Brigadier-General G. S. Cartwright, C.B. C.M.G. Retired List Royal Engineers, has again acted as Special Lecturer (without expense to University funds) and his services have been of great assistance to the Department.

(15) REPORT OF THE UNIVERSITY HEALTH SERVICE

(*Dr. George D. Porter, Director*)

Examinations.—All the first and second year students in the University, and those in other years taking part in athletics, have received their medical examinations. The results of these are very satisfactory. The general standard can best be shown by stating that those who are physically fit and able to take regular Physical Training total 99.2 per cent. Those able to take modified physical training and corrective exercises total 6 per cent. and the remainder who are unable to take any Physical Training owing to illness or physical disability, amount to only 1.8 per cent.

It is pleasing to report that the percentage of students whose physical category has been raised during the past year was 51.7 per cent. The percentage of those whose physical category was lowered owing to illness or accident was only 4.6 per cent.

Venereal Diseases.—It is gratifying to state that according to our examinations there is a clean bill of health in regard to Venereal Diseases in our University.

Corrective Classes.—This part of the work in the Physical Training Department is very important not only for those who are taking them but for efficiency in the general scheme of Physical Training. During the year there were 140 taking part in these classes twice a week. Here they received not only corrective exercises but through the excellent instruction of the Gymnasium Director, Mr. Donald Barton, they are taught corrective exercises which they can carry out by themselves in after life. The number attending these special classes naturally increase during the college year as some of those temporarily unfit at the beginning of the year improve sufficiently to take them, while some of the physically fit, through illness or accident, are placed in these classes for the less strenuous work there.

Exemptions.—This year there have been granted 772 exemptions from Physical Training Classes and C.O.T.C. (owing to illness or accident) for periods of one day to five months. As will be seen from the appended list these were granted for a variety of causes. It will be seen that while a common cold was the most frequent cause some serious infectious diseases occurred amongst the students. It is interesting to note that in three of these cases, one of diphtheria, one of scarlet fever and one of chickenpox, these students did not suspect their condition. They were attending their regular University lectures and came into the Health Director's Office to obtain exemption from Physical Training Classes on account of not feeling fit for gymnasium work. An early diagnosis, as in these cases, is of great importance in preventing the spread of such diseases in the University.

Dispensary Service.—During the year a great many students come in for medical advice and emergency treatment. As many as twenty-six have come in for this service in one day, besides those seeking temporary exemptions from Physical Training. The average number is about eleven a day. From the University standpoint the prevention of the spread of infectious diseases amongst the students is a most important function of the Health Service.

Athletics.—As success in athletics naturally depends upon the physical fitness of the students, we have been of some assistance to the teams and their individual members in this regard. We have prevented a number of students taking part in competitive athletics on account of some disability shown in their physical examinations. In all this work there is the heartiest co-operation between this service and the Athletic Association.

Education.—The Educational value of the work done in classes and the personal instruction received there together with the advice received through the Health Service should prove of great value to the students. The good showing at classes and the increasing number of students taking advantage of the Health Service would seem to support the belief that these are being more and more appreciated by them.

Results of Physical Examinations for

	1921	1922	1923
A-1	64.6%	67.9%	67.7%
A-2	24.0%	25.7%	24.5%
B-1	8.6%	4.7%	6.0%
B-2	2.4%	1.6%	1.2%
C	.4%	.1%	.6%

Students whose physical standard has been raised during the past year—51.7 per cent.

Students whose physical standard has been lowered during the year through illness or accident—4.6 per cent.

Classification

A–1. Students who are physically fit. May take heavy exercise and athletics.

A–2. Physically fit. But owing to light weight, under development etc., may take light exercises, but should be instructed what games to play.

B–1. Students with some defect remediable or otherwise. Must take light exercises and remedial gymnastics.

B–2. Students with some disability. Temporarily unfit for any gymnasium exercise. To report later.

C. Students with some disability not remediable. Exempt from all gymnasium work.

Corrective Classes and Special Physical Training are taken for:

Curvature of Spine, Scoliosis	38
Lordosis	5
Kyphosis	8
Flat Feet	11
Flat Chest	6
Underdeveloped	8
Round Shouldered	4
Injured Knee	4
Special (injuries, etc.)	23
Paralysed Arm	2
Nervous Condition	1
Totally Blind	1
Constipation	2
Hernia	11
Heart Cases	15
Hyperoidism	1

Illness during the year and accidents for which exemptions have been granted from Physical Training Classes and C.O.T.C.

Colds		278
Influenza		17
Bronchitis		21
Tonsilitis		22
Pharyngitis		32
Scarlet Fever		3
Measles		3
Enteritis		8
Hyperthyroidism		1
Migrain		6
Lumbago		2
Cardiac Trouble		2
Myalgia		6
Neuralgia		4
Antrum Infection		2
Conjunctivitis		2
Osteo Myelitis		1
Cystitis		1
Ulcerated Tooth		8
Ingrowing Toe Nails		2
Skin Diseases		32
Furunculosis	17	
Scabies	1	
Ringworm	7	
Eczema	3	
Herpes Zoster	1	
Impetigo	1	
Epidermophyton	1	
Ichthyosis	1	

Diphtheria		1
Mumps		9
Chickenpox		2
Rheumatic Fever		1
Nephritis		2
Appendicitis		2
Asthma		1
Gastralgia		19
Renal Calculi		1
Arthritis		4
Epistaxis		2
Facial Paralysis		1
Carbuncle		1
Frontal sinus infection		3
Otitis		8
Ophthalmia		1
Hernia		1
Torticollis		2
Painful Arches		2
Infections, Local		14
Frost Bites		2
Injuries		179
Fractures	12	
Dislocations	5	
Sprains	91	
Contusions	44	
Abrasions	15	
Cuts	7	
Burns	5	

Operations		17
Appendicitis	2	
Tonsils	3	
Root Abscess	6	
Sarcoma	1	
Nasal	2	
Abscess	3	

REPORT OF MEDICAL ADVISER OF WOMEN

(*Dr. Edith Gordon, Medical Adviser*)

II. WOMEN STUDENTS

516 physical examinations have been made. Of these 276 were compulsory. These were of students from University College, the Faculty of Medicine, the Faculty of Applied Science and the College of Education who were required to take the physical training prescribed for the women students of these colleges and faculties.

The remaining 240 examinations represent voluntary examinations on the part of the students. All faculties, colleges and departments of the University were represented in this group. Among the number were 148 who were examined last year as well as this year, and 55 who have been examined each year for the past three years. I have tabulated these examinations according to improvement or otherwise.

During the year, 29 re-examinations have been made. These have been made upon students who were taking the remedial classes in the gymnasium, and upon students who were exempted from the physical training requirement because of physical disabilities. There have been 66 special examinations for students participating in athletic contests. These examinations are required of the students before playing upon interfaculty or intercollegiate teams.

There were 712 consultations. These consultations have afforded a very excellent opportunity of learning of the health needs and the health problems of the students, and in many cases have proved of great practical value and help to the student. The advice given to the student is acted upon in a way that is very gratifying to the Medical Adviser, and more students are seeking the office with problems of general health. I have tabulated the cases for which advice was sought.

Very little illness has been reported to the medical office, and I understand that there has been little among the women students. There have been several cases of mumps, scarlet fever and measles, but other than those and one or two emergency operations, the illness has been of a very mild character. During the smallpox epidemic in Windsor six of the women students came into the office and were vaccinated.

Several notifications of illness during the year, and at the examinations, have been made to the Registrar, and recommendations have been made for consideration when the facts in the case warranted it.

Ten lectures in Personal Hygiene were given to the First and Second Years in the course leading to a Diploma in Physical Training. Fifteen lectures and demonstrations in First Aid to the Injured were given to the Second Year Class in the same course. Four lectures in Personal Hygiene were given to the students of the Department of Public Health Nursing.

It is the hope of the Medical Adviser of Women that very shortly a course of five or six lectures in Personal Hygiene may be required of all first year women students in the University. The ignorance of the simplest laws of personal hygiene and the need to emphasise the value of health and the ways it may be attained and preserved is very apparent when discussing health problems with individual students. Much is and can be done through personal contact with the student, and the private interview is the ideal way to impart information, but the vast majority of students are not reached in this way, and are graduated from the University with no knowledge of health matters.

The rooms on the third floor of the University College Women's Union available for Infirmary purposes have been of inestimable value during the winter and spring months. Students from the residences on St. George St. and nearby rooming houses have had care and quiet when ill and when nervously tired out. The appreciation of such accommodation on the part of the students is very great. The Infirmary in no way pretends to fulfil the functions of a hospital, but is rather in the nature of a rest home, a place for isolation and observation, and for convalescence. The available space is small, but when filled makes considerable demands upon the staff of the Union.

It is a great pleasure to acknowledge the co-operation and helpful suggestions of the Deans of Women and the Heads of the women's residences. By discussing mutual problems and seeking a better understanding of the problems of college women, we can accomplish more for the students than working in an isolated manner.

The great need of the women students is for adequate quarters for gymnasium and athletic work. The work done by Miss Coventry in the small gymnasium in the Household Science Building is of an excellent character but much restricted in scope because of the inadequacy of the quarters. The remedial work which is a very necessary part of physical training, is being carried out in a small unsuitable room, and with little or no equipment. In the present quarters it is impossible to plan for future development, and only with great difficulty and much readjustment can the required work be done. Providing practice hours for the numerous faculty basket-ball and baseball teams has taxed the gymnasium capacity to the utmost, and even so, has not permitted all to play who wish to do so.

It is sincerely to be hoped that the needs of the women of the University in this particular are being recognized, and will receive consideration in the near future.

Physical Examinations of Women Students of the University of Toronto for the Year 1923-1924

University College, 1927	148
University College (other years)	92
Victoria	44
St. Michael's	29
Trinity	23
Faculty of Medicine, 1929	14
Faculty of Medicine (other years)	23
Faculty of Applied Science	1
College of Education	110
Department of Social Service	5
Department of Public Health Nursing	14
Graduate, Occasional and Special	12
Faculty of Music	1
Total	516

Group A.—Compulsory examinations (first year University College, Faculty of Medicine, Faculty of Applied Science and College of Education)	276
Group B.—Voluntary examinations of other students (all faculties and colleges were represented)	240
Group A.—Students physically able to take Physical Training	90.58%
Students requiring supervised or corrective exercises	7.6%
Students unable to take Physical Training (temporarily or permanently)	1.82%
Group B.—Students physically able to take Physical Training	70.83%
Students requiring supervised or corrective exercises	26.67%
Students unable to take Physical Training (temporarily or permanently)	2.5 %

I.—Preventable and correctable defects (poor nutrition, underweight, overweight, weak feet, functional spinal curvature, constipation, etc.) These defects could be corrected by remedial exercises and proper personal hygiene.	68.9%
II.—Defects that could be corrected by treatment, operation, etc. (diseased tonsils, eye defects, diseased teeth, etc.)	23.15%
III.—Defects that are uncorrectable but that could be prevented from becoming more marked or developing into acute conditions (organic heart lesions, organic spinal curvatures, chest conditions, etc.)	7.95%
Total number of defects found during examinations	1,184

Examination for the second year in succession		148
Marked improvement	11.48%	
Slight improvement	53.38%	
No improvement	28.38%	
Retrogression	6.76%	

Examination for the third year in succession		55
Marked improvement	16.36%	
Slight improvement	58.18%	
No improvement	20. %	
Retrogression	5.46%	

POSTURE GRADING OF THE 516 WOMEN STUDENTS OF THE UNIVERSITY OF TORONTO EXAMINED IN THE YEAR 1923-1924

Good	40.5 %
Fair	37.9 %
Poor	16.66%
Bad	5.44%

CONSULTATIONS, 1923-1924

General Hygiene	187
Diseases of Upper Respiratory Tract	135
Pleurisy	3
Influenza	4
Tonsilitis	12
Infected Antrum	2
Gastro Intestinal	17
Appendicitis	1
Haemorrhoids	5
Pin Worms, Round Worms	2
Sprains, Strains, Injuries	122
Synovitis	2
Myositis	4
Orthopedic Conditions	15
Skin Conditions	38
Furuncle	7
Eye Conditions	11
Ear Conditions	1
Bell's Palsy	1
Menstrual Conditions	11
Rheumatism	3
Vaccinations	6
Communicable Diseases	4
Health Certificates	4
Special Examinations	4
Re-examination of Heart	9
Reporting Illness	72
Excuses from Physical Training	6
Special Excuses to Registrar	11
Other Consultations	13
Total	712

III. REPORT ON ATHLETICS AND PHYSICAL TRAINING

(*Mr. T. A. Reed Secretary, Athletic Association*)

(*a*) *Physical Training.*—In this branch of athletic work the results for the academic year 1923-24 have been very gratifying. Eight hundred and thirty-five students were enrolled in the Gymnasium Classes, and during the session 481 of these classes were held, the instruction being given by Mr. A. J. Edmunds and Mr. W. H. Martin, under the direction of the Chief Instructor, Mr. D. M. Barton. When the weather permitted in October, and again in March and April, some of the work was given out-of-doors.

Students in the First and Second Years, who were required to take Physical Training, were encouraged to enter some form of competitive athletics, this being accepted in lieu of attendance at the regular gymnasium classes. It is a pleasure to be able to report that the co-operation of the student managers of the respective teams with this office in the matter of attendance, was most satisfactory, and the attendance reports show a very small percentage of deficients. In addition to this option, 145 students who wished to take instruction with the Officers' Training Corps were also granted their attendance in Physical Training on the certificate of the Adjutant.

There is no question that the student body at large appreciate the value of the Compulsory Training, and particularly the fact that a man is allowed to choose any form of athletic activity in which he is interested.

A new feature instituted this session was the Corrective Work, carried on under the supervision of Mr. D. M. Barton, in co-operation with the Medical Director. Four hundred and eighty-six classes were held for an enrolment of 140 students, and in a large proportion of these a marked physical improvement was noted, students being given individual instruction on special exercises to be practised at home. In all 139 sessions per week under supervision were held in the above compulsory work and in the various branches of athletics, not included hereafter under (*b*) and (*c*).

The swimming activities were ably directed by Mr. W. W. Winterburn, who conducted 173 classes in swimming and diving, and taught 112 students how to swim. In the Life Saving Classes, 172 students were enrolled, 240 classes were conducted, and an examination held under the regulations of the Royal Life Saving Society of England, when our students attained the highest standing among the Canadian Institutions competing, 257 awards of the Society being granted to University of Toronto men.

(*b*) *Intercollegiate Athletics.*—The session 1923-24 has been a most satisfactory one from the general standpoint of athletics, the number of teams entered in the various forms of sport, and the number of students taking part.

The University of Toronto won a fair share of the Intercollegiate Championships, namely, the Senior Hockey, the English Rugby, the Harrier, the Boxing, Wrestling and Fencing, the Association Football and the Gymnasium Competition. Queen's University again won the Senior Rugby Championship and, for the first time in history, the Intercollegiate Basketball. McGill won the Tennis, the Track, the Swimming and Water Polo. University teams also represented Varsity in the O.H.A. Series in Hockey and in the O.R.F.U. Series in Rugby, while the Rowing Club, under Professor T. R. Loudon's able coaching, for the fourth successive year won the Hanlan Memorial Trophy for Senior Eights at the Canadian Henley.

The Intercollegiate Boxing and Wrestling Team visited the United States Naval Academy at Annapolis, the United States Military Academy at West Point, and the Massachusetts Institute of Technology, in Boston, and with the Hockey Team, the Basketball Team and the Lacrosse Team upheld the good name of the University in the United States and won a goodly proportion of the contests.

(*c*) *Interfaculty Athletics.*—Notwithstanding the smaller enrolment of men students, participation in the various competitions for Interfaculty Cups was keener than in any previous season.

The Mulock Cup (Rugby), now in its thirtieth year of competition, was won by Victoria College, and at their Annual Athletic Dinner was presented to them by the donor, Sir William Mulock, K.C.M.G., in person. In this series nearly 300 players took part.

In the Interfaculty Hockey close upon 200 students were engaged, 225 in Basketball, 170 in Indoor Baseball, and 30 in Gymnasium Classes, while 450 students were given elementary instruction in Boxing, Wrestling and Fencing. In the Track Sports there were 85 in the Interfaculty competition, and 80 men continued indoor work throughout the winter, under the supervision of Mr. Frank Halbus, who supervised 47 classes in this important branch of athletics, as well as the training for the out-door meet in October. In Water-Polo and Swimming, 161 swimmers participated in the various competitions, University College winning the trophies for the Interfaculty championships.

IV. DEPARTMENT OF PHYSICAL EDUCATION FOR WOMEN

(*Miss I. Coventry*)

Compulsory Physical Training Classes were composed of the First Year Women Students of the University College, of the Faculty of Medicine, of the College of Education taking the Physical Training option, Voluntary Students from University College, Trinity College, Victoria College and St. Michael's College.

The Compulsory Physical Training Class composed of First Year Women Students of University College numbering one hundred and thirty had to be subdivided into four classes on account of the limited floor space in the small gymnasium, and to accommodate students who could not attend the regular class periods arranged for the Compulsory class. Even this arrangement was not a satisfactory one as the numbers could not be equally divided. Each class had two periods per week instruction.

Seven special periods of instruction in corrective and remedial exercises were arranged to accommodate women students required to take this work. These classes, composed of eight or ten students requiring individual attention should be conducted in smaller rooms, equipped with the necessary apparatus, thus freeing the gymnasium which is needed for the larger athletic classes.

It was impossible to arrange satisfactory class periods for the forty students who are enrolled in the First and Second Year of the Diploma Course in Physical Training for the same reason, *i.e.*, lack of accommodation. It is to be expected that the enthusiasm and interest shown in these two courses will be continued next year, with the prospects of a Third Year Diploma class numbering fourteen students.

To meet the many appeals of the students and athletic teams and clubs for organized games, it was necessary to arrange several periods at hours not convenient to students.

The above statements make clear the pressing needs for larger and more suitable equipment for carrying on the work of the Physical Education Department. It is to be hoped that the women's new Gymnasium will become a reality in the near future. In planning for the new building, the following requirements are, in my estimation, very essential:

1. Sufficient grounds for the outdoor sports of:
    - (*a*) Six tennis courts.
    - (*b*) Field hockey.
    - (*c*) Ice hockey.
    - (*d*) Lacrosse.
    - (*e*) Outdoor basket-ball.
    - (*f*) Outdoor baseball.
2. One large main gymnasium and six smaller gymnasia.
3. Two lecture rooms.
4. Adequate offices for the Medical and Physical Education Staffs.
5. Locker and dressing rooms.
6. Rest rooms.
7. Swimming Pool and Showers.

REPORT OF THE DEPARTMENT OF PHYSICAL EDUCATION FOR THE YEAR 1923-1924

Number of First Year University Students enrolled in Section I	44	
Number of First Year University Students enrolled in Section II	32	
Number of First Year University Students enrolled in Section III	30	
Number of First Year University Students enrolled in Section IV	24	
Number of First Year Students in Faculty of Medicine	10	
Number of First Year Students in Faculty of Science	1	
Number of Graduates, College of Education	107	
Public School	13	
Number of Students, all years, Corrective and Remedial Course	80	
Number of Students in Physical Education Diploma Course (First Year)	20	
Number of Students in Physical Education Diploma Course (Second Year)	20	
Number of Students from Trinity College	5	
Number of Students from Victoria College	31	
Number of Students from St. Michael's College	7	
Number of Students, all years, Fencing Class	24	
Number of Students, all years, Senior Class, Interpretive and Classical Dancing	8	
Number of Students, all years, Junior Class, National and Folk Dancing	20	
Number of Students, all years, Athletic Games, including:		
1. University College basketball, baseball	12+7	
2. Faculty of Medicine basketball, baseball	12+7	
3. Victoria College basketball, baseball	12+7	
4. Ontario College of Education basketball, baseball	12+7	
5. St. Michael's College basketball, baseball	12+7	
		95
Number of students per week		561

Total number of class periods in gymnasium (two periods per week)		
First Year Students, Sections I, II, III, IV	107	
First Year Students, Faculty of Medicine	46	
First Year Students, Physical Training Diploma Course	46	
Second Year Students, Physical Training Diploma Course	46	
College of Education	97	
All Years, Corrective and Remedial Classes	160	
University College, Faculty of Medicine, Ontario College of Education and St. Michael's team games	174	
All Years, Fencing Class	10	
First Year, Junior Dancing Class	22	
All Years, Senior Dancing Class	22	
Total		730

Swimming attendance:

Total number of women students using the Swimming Pool from October to end of May		
University College	172	
Trinity College	13	
Victoria College	73	
St. Michael's College	25	
Ontario College of Education	107	
		390

(16) REPORT OF THE WARDEN OF HART HOUSE

(*J. B. Bickersteth, Esq., M.C., M.A.*)

During the past year there has been an almost embarrassing demand by many departments of Hart House for further space. Every part of the building, large as it is, has been in daily use, and as the various activities continue to develop the question of expansion will become a difficult one. Owing to the somewhat smaller registration of students in the University, the actual undergraduate membership of Hart House has decreased. The senior membership (Faculty and Graduate) has, however, increased.

The House Committee.—The House Committee, which has met regularly throughout the year, has given much time and thought to the welfare of Hart House as a whole. During the summer a considerable outlay was necessary for the repair and renewal of equipment due to legitimate wear and tear. It is worthy of comment that during the past year not a single case of deliberate damage to equipment has been brought to my attention.

A new departure this year, fostered by the House Committee, has been the holding of a debate in the Lecture Room on open parliamentary lines. This aroused great interest both in the University and further afield and proved so successful that other debates of a similar character will be planned next year.

The usual social functions were held, each Faculty and College having the right to hold its Formal At-Home in Hart House, if it so desires. The so-called "Faculty Night" was given by University College, the Faculty of Applied Science and Engineering and the Royal College of Dental Surgeons.

The Elections for all Hart House Committees were held in Hart House in March. Great interest was taken in these Elections, there being a large poll, and candidates not only of the larger Faculties but of the smaller Colleges were successful, the latter being thus brought into touch with the official life of Hart House for the first time.

In September a very beautiful carving was presented to Hart House by Sir Michael Sadler and has been placed in the Chapel. The Graduating Year of 1924 has presented Hart House with a picture.

The Hall Committee.—Meals have been served in the Great Hall for undergraduates throughout the academic year and, in view of the decreased number of men in the University the attendance has been very satisfactory. Throughout the year the Hall Committee has given careful consideration to the many problems connected with this department of Hart House, and in October recommended a slight increase in the price of the cheaper meals. Mr. V. C. Kerrison, who has been Superintendent of the Dining Hall during the past four years and throughout that period has done all in his power to make the Great Hall a success, signified his intention of resigning at the end of the season. Mr. W. H. Campbell has been appointed to take his place.

The following are some of the larger functions held in Hart House during the winter: The Actuarial Society Dinner, the Dinner given by the Board of Governors of the University in honour of Dr. F. G. Banting and Dr. J. J. R. Macleod, the Ontario College of Education Dinner and a dinner given in honour of Sir Robert Falconer by the Faculty of the University.

The Library Committee.—The Library has been in daily use from morning till night. The Library Committee has arranged for an adequate supply of periodicals in the Reading Room and has added a number of new books to the Library. Although books have been removed from the Library the number is not great and the Committee does not feel justified in changing what has always been its policy, namely, that of allowing free access to the shelves without any supervision.

Music Committee.—The Sunday Evening Concerts inaugurated last year have been continued during the past winter with great success. On every occasion the Great Hall has been completely filled with students and their friends. The demand for tickets has been far greater than the supply. The leading musicians of Toronto have again willingly given their services at these concerts, and a very great debt of gratitude is owed to Mr. Paul Wells, Mr. Adaskin, Mr. Campbell McInnes, Mr. Viggo Kihl, Mr. Claud Biggs, Mr. Ernest Seitz, Mr. Boris Hambourg, Mr. De Kresz, Mr. Guerrero, Dr. Healey Willan, Mr. Leo Smith, Mr. Blackstone, Mr. Geoffrey Waddington, Mr. Max Mellor, and others. Recitals have been held in the Music Room at 5 p.m. on every Friday afternoon during full term time and the large attendance has proved how much they are appreciated. Here again we are indebted to many professional musicians of Toronto who always seem ready to come to Hart House, as friends, and play or sing to student audiences.

The Billiard Committee.—The Billiard Room has been in constant use during the winter. That the interest in English billiards has steadily increased is proved by the demand for another English billiard table, which is the third installed during the past few years. In March an exhibition game of billiards by the Ex-champion of Ontario and the present Canadian Champion was given in the big Gymnasium and proved very popular.

The Sketch Committee.—During the past winter exhibitions and informal lectures have been held at regular intervals. Lectures have been given by Mr. T. A. Reed, Dr. MacCallum, Professor De Champ and Mr. Lawren Harris; and there have been exhibitions of pictures by Tom Thomson, Mr. Alan Barr, Mr. Lawren Harris and the Ottawa Group of Artists. The latter exhibition was held in January, an Opening Night being arranged at which there was a large attendance. It was the first occasion on which an exhibition of pictures from outside Toronto had been held in Hart House. It is estimated that during the week about 1,600 people viewed this exhibition. This winter, also for the first time, a regular course of instruction in drawing and water-colour work was given by Mr. Varley and Mr. Haines in the Sketch Room, and there was a steady attendance of twenty members at these classes. Four pictures have been purchased for the House during the course. The Sketch Committee owe much to the interest and energy of Professor Fairley.

The Camera Committee.—The Dark Rooms have been in constant use and, under the direction of Mr. K. B. Jackson, much valuable work has been done. The most successful exhibition in the history of the Camera Club was held in December. This Committee has made itself responsible for the taking of photographs of all productions in Hart House Theatre.

The Squash Racquets Committee.—The interest in Squash Racquets continues to develop as shown by the steadily increasing number of players. The ventilation of the Courts has been greatly improved under the supervision of Mr. Coventry. Several matches were played during the year among which were those with the visiting English team.

The Graduate Committee.—The number of graduate members has increased, and the dining room and sitting room reserved for their use have been much used. A graduate dinner has been held every month, at which there has been an average attendance of sixty members. Mr. T. A. Russell, Dr. S. A. B. Mercer, Mr. Le Pan and Professor Gilbert Jackson have been among the speakers at these gatherings. The graduate representative on each of the various committees of Hart House has given valuable service.

Religious Activities.—The Student Christian Association has carried out much useful work in Hart House during the past year. Many study groups have been held in the building and a number of mid-day speakers have addressed the students in the Lecture Room. The Chapel has been regularly used by informal groups of students, and a celebration of the Holy Communion has been held there on the second Sunday of each month.

The Theatre.—The relations between Hart House and the Board of Syndics have been most cordial. Arrangements were made by which the theatre was put at the disposal of the various Faculty and College Dramatic Societies.

Athletic Association.—There has been the closest co-operation between the Board of Stewards and the Athletic Directorate. Hart House, as a whole, owes much to Mr. T. A. Reed, Secretary of the Athletic Association.

The Comptroller of Hart House.—Mr. W. H. Graham left Hart House in July and his place was taken by Mr. J. R. Gilley (S.P.S. '21). Mr. Gilley has already taken over many of the purely administrative duties of Hart House, and his work during the past twelve months has proved him to be a most valuable addition to the staff.

As in past years, it has been my endeavour to make the personal acquaintance of as many undergraduates as possible, and with this end in view I have entertained several hundred students in my rooms during the past winter.

Any contribution which Hart House has been able to make to the common life of the University during the past session has been due in no small measure to the whole-hearted support of the seventy undergraduates who sit on its various Committees, and to the time and labour which Dr. V. E. Henderson, Professor M. A. Mackenzie, Professor C. R. Young, and other members of the Faculty have so freely given in the solution of its many problems.

(17) REPORT OF THE DIRECTOR OF THE CONNAUGHT LABORATORIES

(Dr. J. G. Fitzgerald)

During the year 1923-24, acting upon the recommendation of the Connaught Committee of the Governors of the University, the name of these Laboratories has been changed to the Connaught Laboratories. The former designation, namely Connaught Antitoxin Laboratories was found to be unsatisfactory because of the many activities, other than the production of antitoxins, carried on in the Laboratories.

Ten years have elapsed since in May, 1914, the Antitoxin Laboratory, in the Department of Hygiene, was established. During this first decade of existence of the Laboratories the work in all its aspects, research, teaching and public service has greatly expanded but the same functions are performed. Those objectives which were sought when the somewhat halting and uncertain first steps were taken are still the desired ends. These are the promotion and extension of knowledge in the field of Preventive Medicine through research, investigation and teaching; the creation of adequate and complete facilities for such work and finally the conduct of a public service, undertaking the preparation and distribution of public health biological products which shall be self-sustaining and at the same time provide a measure of support for abstract research in this field.

The staff changes during the year have been as follows:

Appointments

Dr. W. Ray Hodge, Research Associate.
Mr. Beecher Weld, M.A., Research Associate.
Miss Dorothy McCullough, M.A., Research Assistant.

Resignation

Mr. D. M. Findlay, M.A.

There have also been various changes among the temporary personnel in the operating divisions, *i.e.*, Antitoxin and Insulin. The staff at present numbers 56, of whom 52 are on a full-time and 4 on a part-time basis. The staff on June 30th, 1914, numbered 5, of whom 2 were part-time.

A brief statement of the activities of each of the Divisions of the Laboratories appears hereunder.

Research Division.—The main lines of research prosecuted during the year have been of two general sorts. Those in the field of infection and immunity and various studies of insulin action, as well as investigations of a physico-chemical nature, having as their purpose the purification of this substance. Several methods for further increasing yields of insulin have been explored.

For the first time, during the present year, a graduate student working on a fellowship granted by the Rockefeller Foundation has been a guest of the Research Division—Miss Grace Wilson, M.A., of the University of British Columbia, who has held this fellowship and has done valuable work during the period in which she has been a member of the staff, and she returns to the University of British Columbia at the beginning of the session 1924-25 with the best wishes of her associates of the past year. Miss Dorothy G. Doyle, M.A., of the Department of Bacteriology and Experimental Pathology of the University of California was a valued member of the staff of the Research Division from July 1st to December 31st, 1923, when she returned to the University of California to accept the Edith Claypole Memorial Fellowship in that University. Miss Doyle, by her energy and industry, contributed materially to work which had been initiated under the direction of Dr. Fitzgerald during the previous year in the University of California.

Dr. Caulfeild and his associates have made substantial progress in their investigations into the serology of tuberculosis. They are also undertaking researches into the mechanism of pollen anaphylaxis (using the Dale method for the determination of specific protein sensitisation). This aspect of the work is being done by Miss Cecile Cohen; Miss M. Maclennan has perfected a technique for the conduct of the reaction of fixation, which is an exceedingly thorough and valuable contribution. Just recently Captain V. C. Best, C.A.V.C., on leave of absence, has joined the Research Division as a voluntary assistant, and under Dr. Caulfeild's direction is engaged in the conduct of an interesting study of tuberculosis in the dog, from the point of view of infection and immunity with especial reference to serology. Under the direction of Dr. Fitzgerald, Mr. Beecher Weld M.A., of the University of British Columbia, who has been made a Research Assistant has continued the studies on the serological reactions of strains of B. diphtheriae. Dr. Donald Fraser, assisted by Miss H. Wigham, has published the details of some very interesting and novel methods for the determination of toxigenic power of strains of B. diphtheriae by intracutaneous injection, which methods are also suitable for the assay of exceedingly minute quantities of diphtheria antitoxin. The mouse method of assay of insulin described by Dr. Fraser has been used with success in the prosecution of investigations of insulin in laboratories in many parts of the world. Preliminary studies of the effect of various antisera on the soluble toxin of strains of streptococci (recently described by G. F. and G. H. Dick and A. R. Dochez) have also been made by Dr. Fraser and others in the Laboratories.

Because of the very great significance of the work of the Dicks and A. R. Dochez, Dr. W. Ray Hodge (who has rejoined the staff of the Laboratories as a Research Associate on a part-time basis) has begun an elaborate study of the question of the etiology, prevention and treatment of scarlet fever. He will be assisted in this work by Miss Dorothy J. McCullough, who has been appointed a Research Assistant.

Studies of the viability of vaccine virus and certain related questions, which have been the subject of several interesting contributions by Dr. R.D.

Defries and Miss L. O. Hanna, have had to be temporarily discontinued because of the illness of Miss Hanna, who is at present on extended leave of absence. Miss Hanna was one of the three original members of the Laboratories staff and her illness and enforced absence is greatly regretted.

Mr. C. H. Best, Mr. D. A. Scott, Mr. K. McAlpine, Miss Ridout, and others, have continued their important research work in the Insulin Division. A very interesting and significant series of contributions has been made by these investigators. Among them was a paper on the presence of insulin in normal tissues. Dr. P. J. Moloney and Dr. D. M. Findlay have continued their investigations of the phenomena of adsorption of insulin, and have published valuable contributions. Dr. Moloney has again taken up the study of diphtheria toxin from the standpoint of physical chemistry.

Further studies of the biochemical activities of B. diphtheriae have been made by Miss Doyle and Dr. Fitzgerald.

A complete list of publications prepared by the staff of the Connaught Laboratories and the Department of Hygiene and Preventive Medicine is contained in the Special Appendix (9).

Antitoxin and Insulin Divisions.—As stated in last year's report, the Board of Governors placed at the disposal of the Laboratories the building formerly occupied by the University of Toronto Y.M.C.A. for the use of the Insulin Division. The total expenditure incurred in the alterations of the building and in the purchase of equipment for large scale production of insulin was $43,000. This undertaking was made possible by a grant of $25,000 from the Provincial Government of Ontario and a gift of $10,000 from Mr. Bacon of New York. The balance was provided by the Connaught Laboratories. The success which has attended the production of insulin has been most encouraging. The operation of the new plant has made possible a series of price reductions so that at present the cost of insulin is about one-fifth of what it was in January, 1923. Insulin is distributed throughout Canada, as well as in Newfoundland, British West Indies, New Zealand, South Africa, Irish Free State, Uruguay, Spain, Palestine and Japan. The cost of insulin to the average patient is less than 20 cents per day.

The prevalence of smallpox in Canada during the past year is shown by the very large quantity of vaccine virus distributed. A total of over four hundred thousand capillary tubes of vaccine virus were supplied in Canada during the past year, representing a large increase in the amount distributed over former years, with the exception of 1920, when smallpox was epidemic in Ontario. The necessity for adequate provision to meet such emergencies was illustrated by the sudden great demand for vaccine virus in March, 1924, when smallpox became epidemic in Windsor and the border cities. During a period of three weeks over 90,000 tubes of vaccine were supplied and at the same time seventy-five thousand tubes were sent to other communities, including the Western provinces, making a total distribution of 165,000 tubes in this short period.

Biological products prepared by the Laboratories are as follows: diphtheria antitoxin, tetanus antitoxin, anti-meningitis serum, toxin-antitoxin mixture, schick test outfits and vaccines for the prevention of smallpox, typhoid fever, whooping cough and hydrophobia. These products are being distributed to the Provincial Boards of Health, to hospitals and physicians in Canada. An increasing quantity of these products is being supplied to British West Indies and Newfoundland.

Just before concluding this report reference should be made to the fact that a most munificent gift of $650,000 is to be contributed by the International Health Board of the Rockefeller Foundation to the Governors of the University to provide a new building to house a School of Hygiene, with which the Connaught Laboratories will be intimately connected. Further details of the organisation have yet to be perfected, but the Director desires to place on record his deep appreciation of the action of the International Health Board of the Rockefeller Foundation.

The very great assistance, both personal and in committee, rendered by Colonel Albert E. Gooderham, Chairman of the Connaught Committee of the Governors, and the loyal and whole-hearted co-operation of all the members of the staff of the Laboratories, is gratefully acknowledged.

(18) BIOLOGICAL MUSEUM AND ROYAL ONTARIO MUSEUM OF ZOOLOGY

(*Professor B. A. Bensley*)

During the year 1923-24 the zoological collections were greatly augmented and there were important accessions to the library.

(1) The following collections were received by donation:

A collection of mounted heads of mammals of India from Major A. B. Wilkie, Toronto.

A collection of 503 bird skins, property of the late Mr. James Goldie, Guelph, presented by the Honourable Lincoln Goldie, Provincial Secretary.

A collection of mounted birds and mammals from the estate of the late Dr. H. H. Moorhouse, Toronto.

A collection of 284 bird skins from Mr. H. H. Brown, Toronto.

A case of mounted birds from Mrs. Riseborough, Toronto.

A collection of zoological specimens from the Royal Canadian Institute, Toronto.

A collection of birds and other specimens obtained by Commander Allan Crawford on Wrangel Island, presented by Professor J. T. Crawford, University of Toronto.

A large number of specimens of birds and mammals from the Parks Department, City of Toronto.

Collections of specimens obtained through co-operation of friends of the Museum, including Mr. Stuart Thompson, Dr. Paul Harrington and Mr. W. LeRay.

A collection of birds of Iowa from Mr. L. L. Snyder, Royal Ontario Museum of Zoology.

(2) The following collections were purchased at a nominal valuation:

A collection of birds' eggs and 354 bird and mammal skins from Mr. A. A. Wood, Coldstream, Ont.

A collection of 1,184 bird and mammal skins from Mr. G. G. Garrett, Cranbrook, B.C.

A collection of molluscan shells from Mr. E. H. Cole, Toronto, through the Royal Ontario Museum of Mineralogy.

(3) Individual specimens were received from the following donors:

J. B. Chamberlain, Lindsay, Ont.
Dr. H. R. Reazin, Toronto.
W. R. Campbell, Coldstream, Ont.
Dr. W. A. Costain, Toronto.
D. Bell, Lake Nipigon, Ont.
R. Hardman, Toronto.
Mrs. D. S. Barclay, Toronto.
R. W. Arnold, Toronto.
N. H. Brown, Toronto.
N. Walker, Toronto.
J. W. Sedore, Toronto.
McL. Howard, Toronto.
Mrs. Cowan, Toronto.
Mrs. Garrett, Toronto.
J. Roberts, Credit Forks, Ont.
E. G. White, Ottawa.
G. R. C. Merriam, Toronto.
Miss Lillian Lucas, Toronto.
J. H. Fleming, Toronto.
Mrs. Gemmel, Toronto.

J. J. Steele, Toronto.
Miss L. Pratt, Petrolia, Ont.
C. W. Gutteridge, Toronto.
G. H. Corsan, Toronto.
R. Lansing, Toronto.
D. Stringer, Algonquin Park, Ont.
W. Filman, Aldershot, Ont.
T. D. Dockray, Toronto.
F. Smith, Toronto.
E. Brown, Toronto.

(4) The following donations of books have been received:

Richardson, Fauna Americana Boreali (1829) and Studer, Birds of North America (1903) from the late Sir Edmund Walker, Chairman of the Board of Trustees.

Elliot, Synopsis of Trochilidae (1878) from the Honourable Lincoln Goldie, Provincial Secretary.

A description of the Animal Collection of the Tower of London (1829) from Mr. W. G. Ferrier, Toronto.

Collections of pamphlets from systematists of the United States and Canada.

(5) Members of the scientific and technical staff visited St. Andrews, Lake Nipigon, and other localities, obtaining a large amount of zoological material. The exhibition series of fishes has been greatly improved by addition of coloured casts of marine species, and new methods of mounting birds have been introduced.

(19) STATEMENT REGARDING THE GEOLOGICAL MUSEUM

(*Professor E. S. Moore*)

A large number of specimens has been added to the collections in the Museum of Geology during the past year through collections, donations, and purchases. The economic collections have been greatly strengthened, both for student use and in the interests of the public, by additions of suites of specimens of ores from many important mining camps. The work of labelling the specimens formerly in the gallery is practically completed and the gallery has also been made more attractive and instructive to visitors by the decoration of the walls with paintings of geological features.

The most notable purchase for the gallery is a model of Niagara Falls and its surroundings. This model is 8×12 feet and it illustrates in a very interesting manner the conditions at the Falls.

The Director of the Museum collected suites of large specimens illustrating the geological features of the ore deposits at the following mining camps: Bruce Mines, Ont., Premier Mine, B.C., Coeur d'Alene lead-silver district, Idaho, Butte, Montana, and Homestake Mine, S. Dakota.

Among the larger donations received were: Polished marbles from Société Anonyme de Merbes Le Chateau, and Société Anonyme de Merbes Sprimont, Belgium; choice specimens of silver ore from Mr. Scott Turner, of the Mining Corporation of Canada; specimens of glaciated boulders from various continents and specimens of native gold, donated by Dr. A. P. Coleman. A large number of other donations from officials of mining companies in England, Canada and the United States, and from students and faculty of the University are gratefully acknowledged.

(20) STATEMENT REGARDING THE PALÆONTOLOGICAL MUSEUM

(*Professor W. A. Parks*)

Two skeletons of dinosaurs from Alberta have been mounted in the gallery during the year. One of these is a new genus and species of armoured dinosaur, *Dyoplosaurus acutosquameus*; the other is a nearly perfect specimen of the trachodont dinosaur, *Prosaurolophus maximus*. The head of a new genus of horned dinosaur has been prepared, also, but it is not yet mounted.

The space available for the exhibition of vertebrate fossils has now become so limited that an extension of the museum building is necessary if this work is to be continued.

The University expedition of 1923 obtained several fine specimens from the Edmonton formation on the Red Deer river, Alberta. The collections have been increased by a considerable number of fossils and by other material, the chief of which are indicated below:

By Donation

Carboniferous fossil plants, Minto, N.B.—Dr. W. S. Dyer.
Slabs with conodonts and annelid teeth—R. R. Hibbard, Esq., Buffalo, N.Y.
Collection of Bryozoa with sections—R. R. Hibbard, Esq., Buffalo, N.Y.
Cretaceous and Jurassic fossils of England—Dr. F. R. C. Reed, Cambridge, England.
Scapula of Mammoth—J. C. Rowan, Esq., Toronto.
Mammalian teeth from Saskatchewan—Dr. J. J. Finn, Dundurn, Sask.
Teeth and bones of elephants and horses—M. S. Tracy, Esq., Medicine Hat, Alta.
Mastodon tooth—C. W. Buchanan, St. Thomas, Ont.
Fossil corals—H. W. Fleury, Esq., Aurora, Ont.

By Collection

Dinosaurs from the Edmonton formation—University expedition of 1923.
Type sections of Ordovician Bryozoa—Dr. W. S. Dyer.
Carboniferous and Devonian fossils from the Banff area—P. S. Warren, Esq.
Additional fossils from Workman's brook—The staff.

By Purchase

Large collection of English fossils—F. H. Butler, London.
Six models of fossil horses—Dr. J. W. Gidley, U.S. National Museum.
Pliocene fossils, corals, etc., from California—C. Sternberg, San Diego, Cal.
Ammonites, Graptolites, etc.—Ward's Natural Science Establishment.
Selected fine specimens of fossils—Emile Deyrolle, Paris, France.

(21) STATEMENT REGARDING THE MUSEUM OF MINERALOGY

(*Professor T. L. Walker*)

In the Royal Ontario Museum of Mineralogy, which is under the direction of Professor T. L. Walker, are very extensive collections of minerals and rocks. The most generous benefactors of this section are men connected with the mining industry. To make the collections more useful to visitors the large specimens contained in the high cases are provided with special explanatory labels. In the cases on the east wall of the gallery a special display of the minerals of Canada is arranged. The Director appeals to friends of the University for contributions of minerals and rocks with a view to making these collections as complete as possible.

During the past year the collections have been increased by donations from a large number of friends, particularly mine-owners in the Cobalt, South Lorrain and Porcupine areas.

Notable presentations have been made by the Vipond Consolidated Mines, the Mining Corporation of Canada, E. V. Neelands, Esq., and Harvard University.

Important exchanges have been made with the British Museum (Natural History), the United States National Museum, the Museum of Natural History, Paris, New York State Museum, Geological Survey of Rhodesia, Rhodesia Broken Hill Development Company, Columbia University, J. G. Manchester, Esq., F. N. Ashcroft Esq., H. G. Clinton, Esq., and Professor Alberto Pelloux, in addition to numerous exchanges of lesser magnitude.

During the year the Museum has secured by purchase two large specimens showing the association of the minerals at the Casey silver mine, near New Liskeard, and at the La Rose mine, Cobalt, Ontario.

(22) STATEMENT REGARDING THE MUSEUM OF ARCHAEOLOGY

(*Professor C. T. Currelly*)

During the past year the rapid growth of the Royal Ontario Museum of Archaeology has continued, a very large number of outstanding national treasures having been added.

The Prehistoric collection has had important additions of three rare swords and a number of very fine stone implements.

The Egyptian department received one of the finest pieces of prehistoric ivory carving in existence, a beautiful collection of bronze images of the god Horus, an excellent mummy case, and other objects of less importance.

The most valuable acquisitions in the Classical department were one hundred and ninety-seven vases, six pieces of sculpture, a helmet and a pair of greaves, and six millefiori glass bowls.

An important series of Saxon weapons excavated in Sussex has been presented.

The Coin collection was increased considerably, one of the outstanding features being a series showing the degradation from the stater of Philip of Macedon to the early British stater of the second century B.C. Many gaps in the English coin series were filled and a very fine Scottish series obtained, including all the better known types. A quite extensive collection showing the development of coinage from Alexander on into the later Persian and Indian coins was also obtained. A notable addition was an almost complete collection of the famous English "touch-pieces" used by the British sovereigns from Henry VII to Anne and Henry IX (Cardinal York) for the cure of the "King's Evil" (scrofula).

To the collection of Savage Art has been added a large number of carvings, iron-work, such as beautifully wrought iron weapons, elaborately decorated shields, and some of the best stone implements that we have yet obtained.

A most interesting collection of primitive American art as shown by the ceramic painting of the Hopi, Zuñi, Acoma, and several other Pueblo tribes, has been acquired; these in time will be among our most valuable possessions. There has also been an addition of extremely good Peruvian sculptured pottery.

Three huge shipments of Chinese works of art have arrived, embracing so many objects and of such importance that it is impossible to enumerate them. The George Crofts Collection is so far in advance of any other known collection of early Chinese art that we will probably hold our supremacy in this great field.

Our Japanese collection received a beautiful series of lacquers made in the seventeenth and eighteenth centuries, a number of pieces of fine metalwork, some outstanding potteries, a series of eighteenth century drawings, and from Corea, five pieces of celadon pottery.

A few interesting pieces of Indian sculpture have been obtained.

The Furniture section has had many important additions, chiefly a very valuable series of English and Italian furniture.

The collection of Metalwork received from Italy seven pieces of very fine decorative ironwork, and from England enough Sheffield plate to fill an exhibition case.

The Arms and Armour collection has been increased by five suits of armour, sixteen pieces of armour, such as helmets and shields, fifty-nine weapons (swords, crossbows, halberds), six pieces of horse trappings, a saddle, and a number of less important pieces.

In the Ceramics department we have received a very beautiful case of early Persian faience and a number of examples of delft and European eighteenth century porcelains, the outstanding pieces being from the pottery at Sèvres.

To the department of Textiles has been added a fine series of Indian weavings, early printed cottons, and some remarkable English embroideries dating from the Spanish work introduced by Catherine of Aragon to about 1800.

The section of Printing has had notable additions: a leaf from the Mazarin Bible, the first book ever printed; samples from Caxton and from twenty of the earliest presses in Europe; a series of very early playing cards. Some exquisite examples of bookbinding have been obtained, twelve more Oriental miniatures, a number of the illustrations for Du Maurier's *The Martian*, several scores of engravings and a large number of works from the colour printers.

APPENDIX B

(1) Enrolment in the Colleges.
(2) Enrolment in University subjects.
(3) Registration in Courses in the Faculty of Arts.
(4) Registration for Graduate Courses.

(1) ENROLMENT IN THE COLLEGES

The students in University College were enrolled as follows:

	Greek	Latin	Ancient History	English	German	French	Orientals	Ethics
First Year—								
Pass	3	128	105	180	12	180	115	0
Honours	9	34	105	70	23	90	0	16
Second Year—								
Pass	3	41	7	185	10	165	98	49
Honours	6	8	6	50	17	45	4	9
Third Year—								
Pass	2	20	5	95	6	116	65	28
Honours	7	5	4	23	12	35	2	10
Fourth Year—								
Pass	5	12	0	85	8	90	52	23
Honours	2	2	2	17	10	24	1	3
Totals—								
Pass	13	201	117	545	36	551	330	100
Honours	24	49	117	160	62	194	7	38

The students in Victoria College were enrolled as follows:

	Greek	Latin	Ancient History	English	German	French	Orientals	Ethics
First Year—								
Pass	3	67	25	73	16	54	13	. .
Honours	2	21	39	50	15	43	. .	8
Commerce	. .	. .	. .	. .	. .	18	. .	. .
Second Year—								
Pass	3	25	4	118	3	85	12	12
Honours	1	3	1	25	16	22	1	4
Commerce	. .	. .	. .	. .	. .	6	. .	. .
Third Year—								
Pass	1	8	. .	70	. .	43	3	21
Honours	3	3	3	11	1	11	1	4
Commerce	. .	. .	. .	. .	. .	. .	. .	. .
Fourth Year—								
Pass	3	8	. .	45	1	26	. .	8
Honours	3	5	3	12	7	17	. .	13
Commerce	. .	. .	. .	. .	. .	. .	. .	. .
Totals—								
Pass	10	108	29	306	20	208	28	41
Honours	9	32	46	98	39	93	2	29
Commerce	. .	. .	. .	. .	. .	24	. .	. .

The students in Trinity College were enrolled as follows:

	Greek	Latin	Ancient History	English	German	French	Orientals	Ethics
First Year—								
Pass	1	15	5	13	4	17	2	. .
Honours	. .	6	7	10	2	7	. .	. .
Second Year—								
Pass	6	18	1	30	. .	28	6	7
Honours	. .	. .	. .	4	. .	3	. .	. .
Third Year—								
Pass	. .	5	1	13	1	9	. .	3
Honours	2	2	2	4	. .	4	. .	. .
Fourth Year—								
Pass	2	6	1	11	. .	6	. .	2
Honours	2	2	2	1	. .	1	. .	. .
Totals—								
Pass	9	44	8	67	5	60	8	12
Honours	4	10	11	19	2	15	. .	. .

The students in St. Michael's College were enrolled as follows:

	Greek	Latin	Ancient History	English	German	French	Philosophy	Ethics
First Year—								
Pass	4	24	..	23	1	23	..	..
Honours	1	7	7	8	1	12	..	..
Second Year—								
Pass	..	37	..	46	1	43	23	..
Honours	..	1	1	7	3	5	5	5
Third Year—								
Pass	..	15	..	41	..	33	25	14
Honours	..	..	..	5	2	5	7	7
Fourth Year—								
Pass	..	6	..	17	1	18	15	5
Honours	2	2	2	10	1	4	4	4
Totals—								
Pass	4	82	..	127	3	117	63	19
Honours	3	10	10	30	7	26	16	11

(2) ENROLMENT IN UNIVERSITY SUBJECTS

The following tables exhibit the numbers attending lectures in University subjects, together with the number of those taking the practical work in the laboratories:

DEPARTMENT OF MATHEMATICS

	Pass	Pass and Honours	Honours
Faculty of Arts—			
First Year	261	...	121
Second Year	40	...	82
Third Year	8	...	31
Fourth Year	3	...	21
Faculty of Medicine—			
First Year	21	...	...
Second Year	3	...	...
Third Year	2	...	...
Faculty of Applied Science and Engineering—			
First Year	...	125	...
Second Year	...	127	...
Totals	338	252	255

DEPARTMENT OF PHYSICS

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	204	..	99	99
Second Year	8	..	56	59
Third Year	4	..	6	14
Fourth Year	7	..	23	15
Faculty of Medicine—				
First Year	..	101	..	101
Second Year	..	4	..	4
Third Year	..	3	..	3
Graduate Students	..	3	..	..
Faculty of Forestry—				
First Year	8	..	..	8
Faculty of Household Science—				
First Year	22	..	..	22
School of Graduate Studies	..	..	27	7
Totals	253	111	211	332

DEPARTMENT OF BIOLOGY

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	204	..	78	78
Second Year	35	..	51	86
Third Year	25	..	27	52
Fourth Year	10	..	2	12
University Extension—				
Teachers' Class, Toronto	40	..	..	40
Faculty of Medicine—				
First Year	..	101	..	101
Second Year	..	29	..	..
Third Year	..	51	..	51
Faculty of Applied Science and Engineering—				
Fourth Year	..	14	..	14
Faculty of Forestry—				
First Year	..	6	..	6
Fourth Year	..	12	..	12
School of Graduate Studies	..	..	..	13
Ontario Agricultural College—				
Second Year	..	95	..	95
Third Year	..	26	..	26
Totals	314	334	158	586

DEPARTMENT OF BOTANY

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	201	..	79	79
Second Year	25	..	30	55
Third Year	21	..	8	29
Fourth Year	12	..	3	15
Faculty of Applied Science and Engineering	..	23	..	23
Faculty of Forestry—				
First Year	..	7	..	7
Fourth Year	..	11	..	11
School of Graduate Studies	..	..	16	16
Totals	259	41	136	235

DEPARTMENT OF CHEMISTRY

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	204	..	118	118
Second Year	59	..	64	123
Third Year	38	..	10	12
Fourth Year	3	..	5	8
Faculty of Medicine—				
First Year	..	101	..	101
Second Year	..	86	..	86
Faculty of Applied Science and Engineering—				
First Year	..	23	..	23
Second Year	..	18	..	18
Third Year	..	79	..	79
Fourth Year	..	13	..	13
Faculty of Forestry—				
First Year	6	..	..	6
Second Year	13	..	..	..
School of Graduate Studies	..	..	22	17
Totals	323	320	219	604

DEPARTMENT OF GEOLOGY

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	308	..	53	..
Second Year	3	..	14	14
Third Year	15	..	2	15
Fourth Year	2	..	4	6
Occasional Students	..	..	3	2
Faculty of Applied Science and Engineering—				
Second Year	..	36	..	1
Third Year	..	30	..	8
Fourth Year	..	43	..	8
Faculty of Forestry—				
Second Year	..	10	..	..
Third Year	..	16	..	16
School of Graduate Studies	..	..	6	5
Totals	328	135	82	75

DEPARTMENT OF MINERALOGY

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
Second Year	8	..	6	14
Third Year	2	..	11	13
Fourth Year	..	..	9	4
Occasional Students	..	..	3	3
Faculty of Applied Science and Engineering—				
First Year	..	35	..	35
Second Year	..	35	..	35
Third Year	..	8	..	8
Fourth Year	..	4	..	4
Faculty of Forestry—				
Second Year	..	9	..	9
School of Graduate Studies	..	..	6	6
Totals	10	91	35	131

DEPARTMENT OF PHILOSOPHY

	Pass	Honours
Faculty of Arts—		
Second Year	64	22
Third Year	30	14
Fourth Year	20	14
University Extension	37	
School of Graduate Studies	..	26
Department of Social Service—		
First Year	33	
Second Year	8	
Totals	192	76

DEPARTMENT OF POLITICAL ECONOMY

	Pass	Honours
Faculty of Arts—		
First Year	93	96
Second Year	110	136
Third Year	128	62
Fourth Year	81	46
University Extension	9	..
Faculty of Medicine—		
Second Year	2	..
Third Year	15	..
Faculty of Applied Science and Engineering—		
Second Year	126	..
Faculty of Forestry—		
Third Year	15	..
Fourth Year	1	..
School of Graduate Studies	..	28
Department of Social Service—		
First Year	41	..
Second Year	7	..
Department of Public Health Nursing	10	..
Occasional Students	12	..
Totals	650	368

DEPARTMENT OF HISTORY

	Pass	Honours
Faculty of Arts—		
First Year	90	96
Second Year	125	101
Third Year	98	57
Fourth Year	87	43
University Extension	2	..
School of Graduate Studies	..	16
Faculty of Medicine	8	..
Totals	410	313

DEPARTMENT OF ITALIAN AND SPANISH

	Italian		Spanish	
	Pass	Honours	Pass	Honours
Faculty of Arts—				
First Year	15	2	95	26
Second Year	8	3	41	19
Third Year	6	1	27	21
Fourth Year	1	2	17	19
School of Graduate Studies	..	..	..	3
Totals	30	8	180	88

DEPARTMENT OF HOUSEHOLD SCIENCE

	Pass	Honours
Faculty of Arts—		
First Year	..	24
Second Year	..	21
Third Year	26	18
Fourth Year	18	14
University Extension	73	..
School of Graduate Studies	..	3
Department of Public Health Nursing	29	..
Totals	146	80

(3) REGISTRATION IN COURSES IN THE FACULTY OF ARTS, 1923-1924

Courses	First Year				Second Year				Third Year				Fourth Year				
	U C	V C	T C	M C	U C	V C	T C	M C	U C	V C	T C	M C	U C	V C	T C	M C	Totals
Pass	135	56	16	28	119	74	30	42	116	49	12	33	92	28	11	20	861
Classics	9	1	..	1	6	1	..	..	4	3	2	..	..	3	2	2	34
Greek and Hebrew	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Orientals	..	..	..	..	..	1	..	..	1	1	..	..	1	..	..	..	4
Orientals (Greek Option)	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	4
French, Greek and Latin	3	2	..	2	..	..	..	..	..	..	..	..	..	1	..	..	8
Moderns	25	14	1	3	25	13	1	3	31	6	1	4	25	15	1	4	172
English and History	25	23	5	4	18	8	1	..	2	7	3	2	11	3	..	4	116
Modern History	3	1	..	..	5	3	2	3	2	3	2	..	3	1	..	1	29
Political Science	14	2	1	..	38	7	3	2	16	10	3	1	11	6	..	..	114
Commerce and Finance (B.A.)	..	..	..	..	14	4	..	..	9	5	..	..	4	5	..	..	41
Philosophy, English and History	9	6	2	..	7	2	..	1	5	..	..	2	1	3	..	..	38
Psychology	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Philosophy	2	..	..	..	7	4	1	5	4	4	1	7	2	5	..	4	46
Mathematics	6	4	1	..	..	1	..	..	6	..	..	..	..	..	..	..	18
Mathematics and Physics	15	8	3	1	14	2	..	2	2	2	..	..	11	6	..	..	66
Natural and Physical Sciences	29	19	5	..	..	..	..	..	..	..	..	..	..	..	..	..	53
Physics	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1
Biology	..	..	..	..	5	3	..	..	7	1	..	..	..	2	..	..	18
Physiology and Biochemistry	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1
Biological and Medical Sciences	..	..	..	..	13	7	1	..	8	10	..	1	9	7	2	..	58
Chemistry and Mineralogy I	..	..	..	..	1	3	..	..	2	1	..	..	2	2	..	..	11
Chemistry and Mineralogy II	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	2
Chemistry	..	..	..	1	..	..	..	..	4	2	..	..	2	..	..	..	9
Geology and Mineralogy	..	..	..	..	1	..	..	..	1	..	..	..	1	..	..	..	3
Household Science	3	..	..	..	1	..	..	..	..	1	..	..	2	..	..	..	7
Household Economics	13	7	1	..	7	13	1	..	9	8	..	..	5	4	1	..	69
Science for Teachers	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1
Commerce and Finance (B.Com.)	53	19	1	2	19	8	1	1	14	..	..	..	6	..	..	1	125
Totals	345	162	36	41	305	154	41	59	244	114	24	50	190	91	17	37	1,910

(4) REGISTRATION FOR GRADUATE COURSES

	Ph.D.	M.A.	M.D.	Ch.M.	M.A.Sc.	M.Arch.	C.E.	M.E.	D.Paed.	Graduate
Department of Anatomy	. .	1	. .	. .	. .	. .	. .	. .	. .	. .
" " Architecture	. .	. .	. .	. .	. .	2	. .	. .	. .	. .
" " Astronomy	. .	1	. .	. .	. .	. .	. .	. .	. .	. .
" " Biochemistry	4	4	. .	. .	. .	. .	. .	. .	. .	. .
" " Biology	4	1	. .	. .	. .	. .	. .	. .	. .	2
" " Botany	5	8	. .	. .	. .	. .	. .	. .	. .	1
" " Chemical Engineering	. .	. .	. .	. .	5	. .	. .	. .	. .	. .
" " Chemistry	11	11	. .	. .	. .	. .	. .	. .	. .	1
" " Civil Engineering	. .	. .	. .	. .	2	. .	4	. .	. .	. .
" " Classics	2	6	. .	. .	. .	. .	. .	. .	. .	1
" " Educational Theory	. .	3	. .	. .	. .	. .	. .	. .	. .	. .
" " English	. .	20	. .	. .	. .	. .	. .	. .	. .	16
" " Food Chemistry	. .	3	. .	. .	. .	. .	. .	. .	. .	. .
" " Geology and Palæontology	4	. .	. .	. .	. .	. .	. .	. .	. .	. .
" " German	. .	1	. .	. .	. .	. .	. .	. .	. .	. .
" " History	2	9	. .	. .	. .	. .	. .	. .	. .	3
" " Household Science	. .	2	. .	. .	. .	. .	. .	. .	. .	1
" " Hygiene and Preventive Medicine	2	3	. .	. .	. .	. .	. .	. .	. .	. .
" " Mathematics	2	7	. .	. .	. .	. .	. .	. .	. .	1
" " Mechanical Engineering	. .	. .	. .	. .	. .	. .	. .	1	. .	. .
" " Medicine	. .	2	3	. .	. .	. .	. .	. .	. .	. .
" " Mineralogy	2	. .	. .	. .	. .	. .	. .	. .	. .	. .
" " Mining Engineering	. .	. .	. .	. .	2	. .	. .	. .	. .	. .
" " Pathology and Bacteriology	1	. .	. .	. .	. .	. .	. .	. .	. .	. .
" " Pathological Chemistry	. .	2	. .	. .	. .	. .	. .	. .	. .	. .
" " Pedagogy	. .	. .	. .	. .	. .	. .	. .	. .	86	. .
" " Philosophy	9	20	. .	. .	. .	. .	. .	. .	. .	5
" " Physics	10	2	. .	. .	. .	. .	. .	. .	. .	1
" " Physiology	. .	2	. .	. .	. .	. .	. .	. .	. .	. .
" " Political Science	5	20	. .	. .	. .	. .	. .	. .	. .	. .
" " Psychology	. .	3	. .	. .	. .	. .	. .	. .	. .	5
" " Romance Languages	2	13	. .	. .	. .	. .	. .	. .	. .	3
" " Semitic Languages	2	6	. .	. .	. .	. .	. .	. .	. .	. .
" " Surgery	. .	. .	. .	4	. .	. .	. .	. .	. .	. .
" " Zymology	1	. .	. .	. .	. .	. .	. .	. .	. .	. .
Totals	68	150	3	4	9	2	4	1	86	40

APPENDIX C

RESULTS OF EXAMINATIONS

(1) Faculty of Arts.
(2) Faculty of Medicine.
(3) Faculty of Applied Science and Engineering.
(4) Faculty of Forestry.
(5) Ontario College of Education.
(6) Faculty of Music.

(1) Faculty of Arts

First Year

	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals	Passed	Starred	Failed	Transferred	Aegrotat	Deferred	Debarred
Pass	..	125	55	16	26	222	115	61	46	..	2	..	51
Supplementals	1	46	22	8	17	94	67	27	..	..	..	..	1
Classics	..	8	1	..	..	9	7	1	..	1	1	..	1
French, Greek and Latin	..	3	2	..	2	7	5	..	..	2	1	..	..
English and History	..	23	22	5	4	54	48	..	..	6	4	..	..
Moderns	..	27	12	1	3	43	40	1	..	2	1	..	..
Political Science and Modern History	..	16	3	1	..	20	14	..	..	6	..	..	..
Philosophy	..	2	..	..	..	2	2	..	..	..	..	..	..
Philosophy, English and History	..	8	7	2	..	17	14	2	..	1	..	..	..
Commerce and Finance	..	48	18	1	2	69	34	29	6	..	..	..	12
Mathematics	..	6	4	1	..	11	7	1	..	3	..	..	..
Mathematics and Physics	..	13	8	3	1	25	17	4	..	4	1	2	2
Natural and Physical Sciences	..	30	19	4	..	53	40	10	1	2	2	..	6
Household Science	..	3	..	..	..	3	1	2	..	..	..	1	..
Household Economics	..	13	7	1	..	21	15	3	..	3	1	..	1
Occasional Students	1	4	1	..	1	7	4	2	1	..	..	..	..
Totals	2	375	181	43	56	657	430	143	54	30	13	3	74

Second Year

	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals	Passed	Starred	Failed	Transferred	Aegrotat	Deferred	Debarred
Pass	..	115	72	29	40	256	146	89	21	..	1	..	71
Supplementals	..	38	15	8	13	74	53	21	..	..	..	..	..
Classics	..	6	1	..	..	7	6	1	..	..	..	..	..
Orientals	..	..	1	..	..	1	..	1	..	..	..	..	..
Orientals (Greek)	..	4	..	..	..	4	4	..	..	..	..	..	..
French, Greek and Latin	..	..	..	..	..	..	..	..	..	..	..	..	..
Moderns	..	24	12	1	2	39	36	2	..	1	2	..	..
English and History	..	18	8	1	1	28	26	1	..	1	3	..	..
Modern History	..	6	4	2	3	15	13	..	..	2	2	..	..
Political Science	..	37	7	3	2	49	36	2	2	9	1	..	..
Commerce and Finance (B.A.)	..	13	4	..	..	17	11	2	2	2	1	2	2
Philosophy	..	7	4	1	5	17	11	4	1	1	..	..	..
Philosophy, English and History	..	7	2	..	..	9	9	..	..	..	1	..	..
Mathematics	..	1	1	..	..	2	..	1	..	1	..	..	..
Mathematics and Physics	..	12	2	..	2	16	12	3	..	1	1	..	..
Physics	..	..	..	..	..	..	..	..	..	..	..	..	..
Biology	..	5	3	..	..	8	7	1	..	..	2	1	1
Physiology and Biochemistry	..	..	..	..	..	..	..	..	..	..	..	..	..
Biological and Medical Sciences	..	13	6	1	..	20	14	4	2	..	..	1	1
Chemistry and Mineralogy	..	1	2	..	..	3	..	3	..	..	..	2	3
Chemistry	..	1	..	..	..	1	1	..	..	..	..	..	..
Geology and Mineralogy	..	1	..	..	..	1	1	..	..	..	..	..	..
Household Science	..	1	..	..	..	1	1	..	..	..	..	..	..
Household Economics	..	7	12	1	..	20	19	1	..	..	1	..	..
Science for Teachers	..	..	..	..	..	..	..	..	..	..	..	..	..
Commerce and Finance (B.Com.)	..	19	8	1	1	29	17	7	5	..	1	..	1
Occasional Students	2	7	3	..	1	13	13	..	..	..	..	..	..
Totals	2	343	167	48	70	630	436	143	33	18	16	6	79

Third Year

	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals	Passed	Starred	Failed	Transferred	Aegrotat	Deferred	Debarred
Pass	..	112	48	11	31	202	132	59	11	..	5	..	34
Supplementals	..	28	6	5	5	44	30	14	..	..	..	..	..
Classics	..	4	3	2	..	9	9	..	..	..	1	..	..
Greek and Hebrew	..	..	..	..	..	..	..	..	..	..	..	..	..
Orientals	..	1	1	..	..	2	1	1	..	..	..	..	..
Orientals (Greek)	..	..	..	..	..	..	..	..	..	..	..	..	..
French, Greek and Latin	..	..	..	..	..	..	..	..	..	..	..	..	..
Moderns	..	31	6	1	4	42	41	1	..	..	1	..	..
English and History	..	2	7	3	2	14	14	..	..	..	..	..	..
Modern History	..	2	3	2	..	7	6	1	..	..	..	..	..
Political Science	..	16	10	3	1	30	26	2	..	2	..	..	..
Commerce and Finance (B.A.)	..	9	5	..	..	14	11	3	..	..	..	3	..
Philosophy	..	4	4	1	7	16	15	1	..	..	1	1	1
Philosophy, English and History	..	4	..	..	1	5	5	..	..	..	..	..	..
Mathematics	..	6	..	..	..	6	5	..	..	1	..	..	..
Mathematics and Physics	..	2	2	..	..	4	4	..	..	..	..	..	..
Physics	..	..	..	..	..	..	..	..	..	..	..	..	..
Biology	..	7	1	..	..	8	7	1	..	..	1	1	..
Physiology and Biochemistry	..	1	..	..	..	1	..	1	..	..	..	..	..
Biological and Medical Sciences	..	8	9	..	1	18	18	..	..	..	..	..	..
Chemistry and Mineralogy I	..	3	1	..	..	4	4	..	..	..	..	..	..
Chemistry and Mineralogy II	..	..	1	..	..	1	..	1	..	..	..	..	..
Chemistry	..	4	2	..	..	6	6	..	..	..	..	..	1
Geology and Mineralogy	..	1	..	..	..	1	1	..	..	..	..	..	..
Household Science	..	..	1	..	..	1	1	..	..	..	..	..	..
Household Economics	..	9	8	..	..	17	17	..	..	..	..	..	..
Science for Teachers	..	..	..	..	..	..	..	..	..	..	..	..	..
Commerce and Finance (B.Com.)	..	14	..	..	..	14	11	3	..	..	..	..	2
Occasional Students	1	2	1	..	..	4	4	..	..	..	..	..	..
Totals	1	270	119	28	52	470	368	88	11	3	9	5	38

Fourth Year

	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	Totals	Passed	Granted standing on Active Service	Starred	Failed	Aegrotat	Deferred Pass Degree
Pass	..	90	27	11	20	148	127	6	19	2	3	..
Supplementals	..	2	1	2	3	8	5	..	3	..	..	..
Classics	..	..	3	1	2	6	5	..	1	..	..	..
Greek and Hebrew	..	..	..	..	..	..	..	..	..	..	..	..
Orientals	..	1	..	..	..	1	1	..	..	..	..	..
Orientals (Greek)	..	..	..	..	..	..	..	..	..	..	..	..
French, Greek and Latin	..	..	1	..	..	1	1	..	..	..	..	..
Moderns	..	24	15	1	4	44	44	1	..	..	1	..
English and History	..	11	3	..	4	18	18	..	..	..	..	..
Modern History	..	3	1	..	1	5	5	..	..	..	..	..
Political Science	..	10	6	..	..	16	16	3	..	..	..	..
Commerce and Finance (B.A.)	..	4	5	..	..	9	9	..	..	..	..	..
Philosophy	..	2	5	..	4	11	11	1	..	..	..	..
Philosophy, English and History	..	1	3	..	..	4	4	1	..	..	..	..
Mathematics and Physics	..	11	6	..	..	17	16	..	1	..	1	2
Physics	..	1	..	..	..	1	1	..	..	..	..	..
Biology	..	..	2	..	..	2	2	..	..	..	..	..
Physiology and Biochemistry	..	..	..	..	..	..	..	1	..	..	..	..
Biological and Medical Sciences	..	9	5	1	..	15	13	..	1	1	..	1
Chemistry and Mineralogy I	..	2	2	..	..	4	4	..	..	..	..	..
Chemistry and Mineralogy II	..	1	..	..	..	1	1	1	..	..	..	..
Chemistry	..	2	..	..	..	2	2	..	..	..	..	..
Geology and Mineralogy	..	1	..	..	..	1	1	..	..	..	..	..
Household Science	..	2	..	..	..	2	2	..	..	..	..	..
Household Economics	..	5	4	1	..	10	9	..	1	..	..	..
Science for Teachers	..	..	..	..	1	1	1	..	..	..	..	..
Commerce and Finance (B.Com.)	..	6	..	..	1	7	7	..	..	..	..	..
Occasional Students	..	4	4	2	..	10	10	..	..	..	..	..
Totals	..	192	93	19	40	344	305	14	26	3	5	3

TEACHERS' CLASSES

	Passed	Starred	Aegrotat
May Examination	112	34	1
September Examination	119	21	..
Totals	231	55	1

(2) Faculty of Medicine

	Passed	Starred	Failed
First Year	78	13	8
Second Year	88	16	3
Third Year	98	31	8
Fourth Year	154	23	2
Fifth Year (Six Years' Course)	103	22	2
Fifth Year (Five Years' Course)	182	28	0
D.P.H	2	0	0
B.Sc. (Med.)	4	0	0
Totals	709	133	23

(3) Faculty of Applied Science and Engineering

	Passed with Honours	Passed	Starred	Failed
First Year—				
Civil Engineering	4	17	9	3
Mining Engineering	1	5	5	2
Mechanical Engineering	6	8	5	1
Architecture	3	6	2	0
Chemical Engineering	5	16	10	2
Electrical Engineering	10	25	9	6
Metallurgical Engineering	0	2	1	2
Second Year—				
Civil Engineering	1	21	13	4
Mining Engineering	1	4	2	2
Mechanical Engineering	4	18	9	8
Architecture	1	5	1	0
Chemical Engineering	1	15	10	2
Electrical Engineering	7	21	6	7
Metallurgical Engineering	0	0	0	1
Third Year—				
Civil Engineering	2	20	7	0
Mining Engineering	2	6	4	0
Mechanical Engineering	6	22	6	2
Architecture	1	9	2	0
Chemical Engineering	1	23	11	1
Electrical Engineering	6	35	16	7
Metallurgical Engineering	1	4	2	1
Fourth Year—				
Civil Engineering	9	26	4	0
Mining Engineering	2	6	2	0
Mechanical Engineering	8	24	3	0
Architecture	1	5	0	0
Chemical Engineering	12	18	2	0
Electrical Engineering	10	43	8	0
Metallurgical Engineering	0	1	1	0

(4) FACULTY OF FORESTRY

	Passed	Honours Deferred	Failed
First Year	3	2	1
Second Year	6	2	2
Third Year	7	6	. .
Fourth Year	12	1	. .

(5) ONTARIO COLLEGE OF EDUCATION

	Passed	Failed
*High School Assistants' Course	254	. .
Specialists' Courses	107	. .
First Class Public School Course	56	. .
Elementary Art Course	36	. .
Elementary Physical Culture Course	150	. .
One Year Household Science Course	13	. .
Bachelor of Pedagogy Course	19	. .
Bachelor of Pedagogy Course (passed in part)	5	. .
Number who failed in whole or part	. .	27

*Many of these are included among those who passed or failed in the other courses in this list.

(6) FACULTY OF MUSIC

	Passed	Starred	Failed
First Year	17	2	4
Second Year	10	2	1
Third Year	1	3	. .
	28	7	5

APPENDIX D

GEOGRAPHICAL DISTRIBUTION OF STUDENTS

The geographical distribution of students is as follows:

FACULTY OF ARTS

	University of Toronto	University College	Victoria College	Trinity College	St. Michael's College	Totals
Ontario: (1) Province	144	498	316	90	101	1,149
(2) Toronto	199	594	170	25	79	1,067
Nova Scotia	1	3	...	1	...	5
New Brunswick	1	2	1	1	2	7
Prince Edward Island	...	2	...	1	...	3
Quebec	...	1	...	...	3	4
Manitoba	1	3	2	1	...	7
Saskatchewan	...	7	26	...	1	34
Alberta	2	5	2	...	...	9
British Columbia	...	14	6	4	2	26
Yukon	...	1	...	...	1	2
United States	2	5	3	3	3	16
Elsewhere	...	15	13	...	1	29
Duplicate registrations	26	1	...	...	...	27
Totals	324	1,149	539	126	193	2,331

SUMMARY

	Faculty of Arts	Graduate Studies	Faculty of Medicine	Faculty of Applied Science	College of Education	Faculty of Forestry	Faculty of Music	Department of Social Service	Department of Public Health Nursing	Totals
Ontario:										
(1) Province	1,149	129	449	294	219	17	15	134	14	2,420
(2) Toronto	1,067	188	330	236	109	16	30	105	36	2,117
Nova Scotia	5	6	3	2	1	1	..	7	3	28
New Brunswick	7	1	..	..	1	..	..	3	1	13
Prince Edward Island	3	..	..	..	2	..	..	..	..	5
Quebec	4	3	4	..	3	2	1	2	..	19
Manitoba	7	5	5	3	4	2		5	1	32
Saskatchewan	34	6	17	8	2	..	3	6	1	77
Alberta	9	4	8	5	2	1	3	2	..	34
British Columbia	26	12	42	5	1	2	2	1	1	92
Yukon	2	..	2	1	..	..	..	..	..	5
United States	16	6	5	3	2	..	2	2	..	36
Elsewhere	29	7	12	9	2	2	..	3	4	68
Duplicates	27	...	..	..	..	..	..	..	..	87
Totals	2,331	367	877	566	348	43	56	270	61	4,859

The students from the Province of Ontario are distributed as follows:

County	Faculty of Arts	Faculty of Medicine	Faculty of Applied Science and Engineering	College of Education	Faculty of Forestry	Faculty of Music	Graduate Studies	Department of Social Service	Department of Public Health Nursing	Totals
Algoma	7	8	8	3	2	..	..	3	..	31
Brant	35	16	13	7	..	..	2	2	..	75
Bruce	20	11	7	5	1	..	2	3	1	50
Carleton	51	15	9	11	2	..	7	7	2	104
Dufferin	10	5	..	4	1	..	..	3	..	23
Dundas	7	2	1	1	..	..	..	4	..	15
Durham	24	13	4	4	1	2	4	..	..	52
Elgin	13	5	9	6	..	..	1	..	..	34
Essex	31	10	7	6	..	..	6	2	..	62
Frontenac	3	2	..	11	..	..	2	4	2	24
Glengarry	2	..	..	8	..	..	..	..	..	10
Grenville	8	2	..	3	1	..	..	1	..	15
Grey	29	18	6	6	2	..	3	5	..	69
Haldimand	16	10	2	2	..	..	..	1	..	31
Haliburton	..	..	..	..	..	..	..	..	..	..
Halton	31	9	10	2	..	1	2	5	..	60
Hastings	23	11	5	4	..	..	2	2	1	48
Huron	29	17	10	7	..	..	10	4	..	77
Kenora	..	..	..	..	..	..	..	..	..	.
Kent	24	13	8	2	..	..	..	..	..	47
Lambton	21	10	4	2	..	..	1	3	..	41
Lanark	18	6	1	4	1	..	3	2	1	36
Leeds	11	3	..	8	1	..	..	2	1	26
Lennox and Addington	9	1	1	2	..	..	..	1	..	14
Lincoln	70	14	10	3	..	..	6	1	..	104
Manitoulin	1	3	..	..	..	..	..	..	..	4
Middlesex	26	4	10	7	1	4	4	1	1	58
Muskoka	12	3	5	3	..	..	1	2	..	26
Nipissing	3	4	1	1	..	..	2	3	..	14
Norfolk	13	7	5	3	..	..	..	..	..	28
Northumberland	15	6	5	4	..	..	1	3	..	34
Ontario	47	15	9	9	..	1	2	3	..	86
Oxford	26	7	10	3	..	1	4	1	..	52
Parry Sound	6	3	2	1	..	..	..	1	..	13
Peel	25	11	12	5	..	..	..	5	..	58
Perth	38	12	8	10	..	1	4	2	..	75
Peterborough	31	7	6	9	..	..	4	4	..	61
Prescott	2	1	..	..	..	..	1	..	..	4
Prince Edward Island	2	..	..	4	..	..	1	..	..	7
Rainy River	1	..	..	..	..	..	..	..	..	1
Renfrew	16	1	2	6	..	1	1	1	..	28
Russell	..	..	..	2	..	..	..	..	..	2
Simcoe	53	28	17	4	1	..	11	13	1	128
Stormont	8	..	2	2	..	..	..	..	..	12
Sudbury	5	1	..	..	..	..	..	..	..	6
Thunder Bay	9	2	2	..	..	..	2	2	..	17
Timiskaming	3	4	4	..	..	..	1	1	..	13
Victoria	18	12	2	1	..	..	3	4	1	41
Waterloo	35	16	19	5	1	..	8	2	..	86
Welland	34	16	11	3	..	..	5	3	1	73
Wellington	47	18	8	12	..	2	6	6	..	99
Wentworth	131	33	19	6	..	2	8	5	..	204
York	50	34	20	8	2	..	9	17	2	142
Toronto	1,067	330	236	109	16	30	188	105	36	2,117
Totals	2,216	779	530	328	33	45	317	239	50	4,537